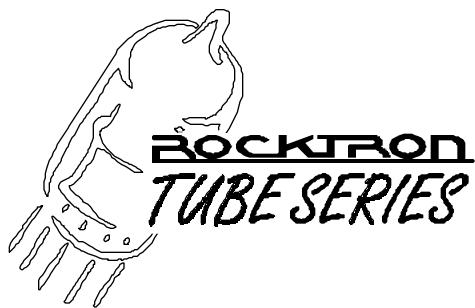


MultiValveTM

USER'S MANUAL



ROCKTRON
CORPORATION

May be covered by one or more of the following: U.S. Patents #4538297, 4647876, 4696044, 4745309, 4881047, 4893099, 5124657, 5263091, 5268527, 5319713, 5333201, 5402498, 5493617 and 5638452. Other patents pending. Foreign patents pending.



Your MultiValve™ has been tested and complies with the following Standards and Directives as set forth by the European Union:

Council Directive(s): 89/336/EEC Electromagnetic Compatibility

Standard(s): EN55013, EN50082-1

This means that this product has been designed to meet stringent guidelines on how much RF energy it can emit, and that it should be immune from other sources of interference when properly used. Improper use of this equipment could result in increased RF emissions, which may or may not interfere with other electronic products.

To insure against this possibility, always use good shielded cables for all audio input and output connections. Also, bundle audio cables separately from the AC power cables. These steps will help insure compliance with the Directive(s).

For more information about other Rocktron products, please see your local dealer or one of our importers closest to you (listed on the enclosed warranty sheet).

Contents

1. Introduction	1
2. Quick Setup	3
3. Front Panel	4
4. Rear Panel	6
5. Connections	8
6. Operating Format	11
MultiValve Functions and Parameter Descriptions	14
GLOBAL Function	15
MIXER Function	16
TUBE MODE Function	17
HUSH Function	18
COMPRESSOR Function	19
EQ Function	20
DELAY Function	21
REVERB Function	23
TREMOLO Function	24
PHASER Function	25
FLANGER Function	26
CHORUS Function	27
PITCH SHIFT Function	28
AUTO PAN Function	30
ROTARY SPEAKER Function	31
SPEAKER SIMULATOR Function	32
7. Operating the MultiValve™	36
Selecting a preset	36
Changing preset parameters	37
Storing changed preset parameters	37
Switching Channels on Amplifiers and Preamps via the MultiValve *	38
Editing a preset title	40
Controller Assignments	42
Copying MultiValve Presets, Titles and Controller Assignments	46
Tap Delay	49
Program Changes	50
MIDI Channels	52
MIDI Dump/Load	54
To dump a single MultiValve preset into another MultiValve	54
To dump a single MultiValve preset into a sequencer	56
To reload user data from a sequencer	58
Factory Restore	60
Restoring a single factory preset:	60
Restoring the MultiValve memory (all presets):	62
Restoring the MultiValve controller assignments:	63
Selecting a Power On Preset	64
Using the MultiValve with a Rocktron All Access™ in REMOTE mode	65
Selecting a Configuration	70
8. Appendix	71
ERROR MESSAGES	71
MIDI IMPLEMENTATION	72
TECHNICAL DATA	73

1. Introduction

Congratulations on your purchase of the Rocktron MultiValve™ guitar effects processor! The MultiValve™ is a 24-bit DSP processor providing tube warmth to a host of high quality digital effects, as well as a number of practical features to enhance any guitar rig.

- **Audio Glassics 12AX7 tube**, which can be inserted into the signal path on any preset, with 2 gain settings for added tube warmth.
- **Preset Spillover** allows for reverb and delays from a current preset to carry over into the next preset and continue decaying when a new preset has been selected.
- **Dual Channel Switching** allows for programmable channel switching of amp heads, combo amps or preamps and eliminates the need for a separate channel switching device.
- **Real Time Control** of delay times and modulation rates through tap tempo and rate parameters. Delay times and modulation rates can be changed instantly by tapping either a momentary footswitch or the front panel Tap Delay/Rate parameter.
- **High quality digital effects** include chorus, delay, auto pan, tremolo, rotating speaker, pitch shift, flanger, reverb and phaser effects.
- **HUSH® noise reduction** operates only on incoming preamp noise, and does not affect the digital effects - which are already ultra quiet.
- **Also provides** compression, a four band full parameteric EQ and complete mixing capabilities.

For a thorough explanation of the MultiValve™ and all its features, please read this manual carefully and keep it for future reference. After removing the MultiValve™ from the box, save all the packing materials in case it becomes necessary to ship the unit.

PRECAUTIONS

NOTE: IT IS VERY IMPORTANT THAT YOU READ THIS SECTION TO PROVIDE YEARS OF TROUBLE FREE USE. THIS UNIT REQUIRES CAREFUL HANDLING.

All warnings on this equipment and in the operating instructions should be adhered to and all operating instructions should be followed.

Do not use this equipment near water. Care should be taken so that objects do not fall and liquids are not spilled into the unit through any openings.

The power cord should be unplugged from the outlet when left unused for a long period of time.

DO NOT ATTEMPT TO SERVICE THIS EQUIPMENT. THIS EQUIPMENT SHOULD BE SERVICED BY QUALIFIED PERSONNEL ONLY. DO NOT MAKE ANY INTERNAL ADJUSTMENTS OR ADDITIONS TO THIS EQUIPMENT AT ANY TIME. DO NOT TAMPER WITH INTERNAL ELECTRONIC COMPONENTS AT ANY TIME. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID THE WARRANTY OF THIS EQUIPMENT, AS WELL AS CAUSING SHOCK HAZARD.

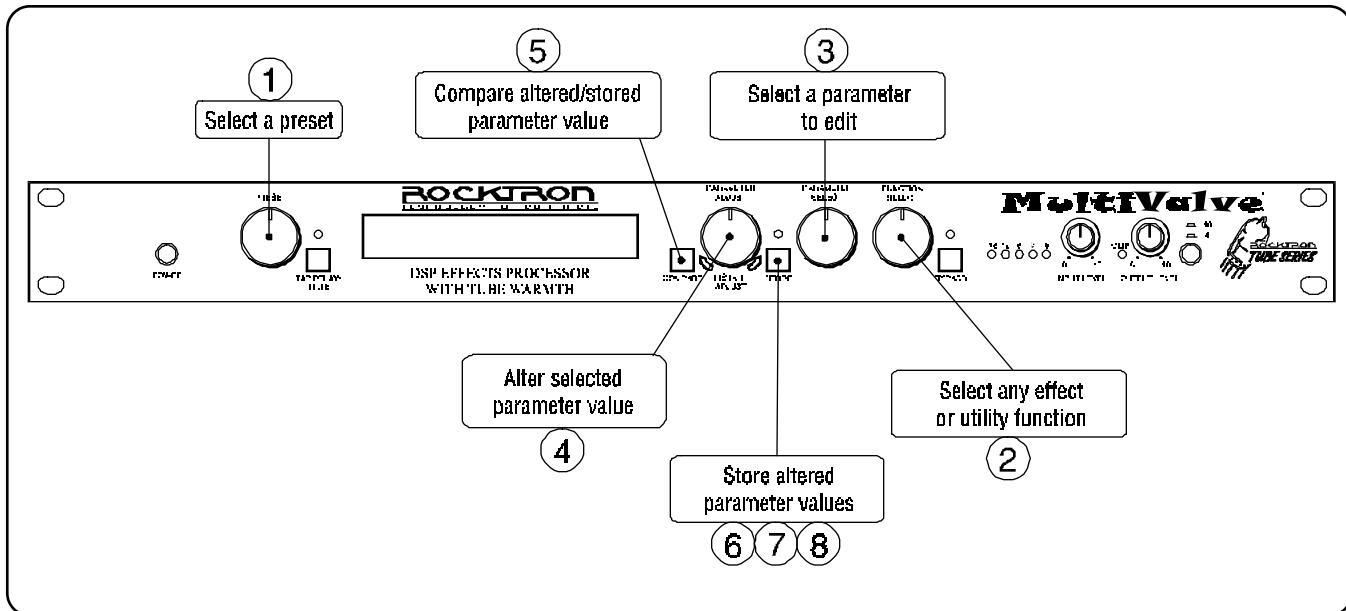
POWER REQUIREMENTS

This unit accepts power from the 9VAC/3.4A adaptor supplied with the unit. This 9 volt RMS AC voltage is internally processed by a voltage doubler which generates a bipolar ± 15 volts to maintain the headroom and sound quality of professional, studio quality equipment. Using an external power source such as this minimizes excessive noise and hum problems often associated with internal transformers, providing optimal performance for the user.

OPERATING TEMPERATURE

Do not expose this unit to excessive heat. This unit is designed to operate between 32° F and 104° F (0° C and 40° C). This unit may not function properly under extreme temperatures.

2. Quick Setup



SELECTING A PRESET

STEP 1 Turn the PRESET control to select the desired preset. The new preset will be recalled automatically.

CHANGING PRESET PARAMETERS

STEP 2 Turn the FUNCTION SELECT control to the desired effect or utility function.

STEP 3 Turn the PARAMETER SELECT control to the parameter you wish to alter under the selected effect or utility function.

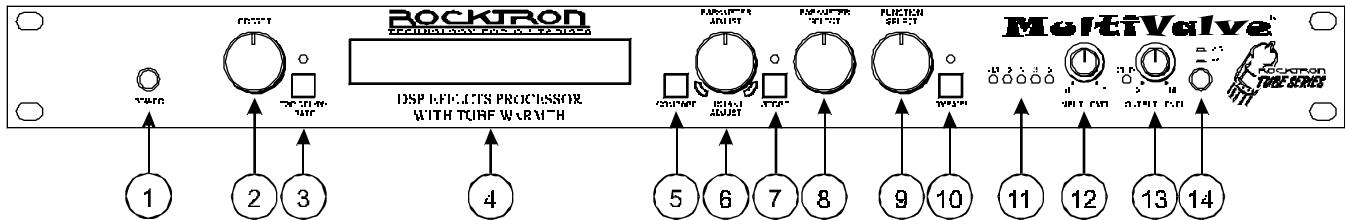
STEP 4 Use the PARAMETER ADJUST control to select the new parameter value.

STEP 5 The COMPARE button may be used to compare the sound of the altered value to the stored value.

STORING CHANGED PARAMETERS

STEP 6 After the desired parameters have been edited, press the STORE button to store the changes into the preset.

3. Front Panel



1 POWER **switch**

2 PRESET **control**

This control scrolls through and instantly recalls the successive presets.

3 TAP DELAY/RATE **button**

This button is used to select a new delay time or modulation rate based on the length of time occurring between two taps. See Section 7: "Tap Delay" for more information.

4 DISPLAY **panel**

The DISPLAY panel provides 16 characters consisting of 14 segments each.

5 COMPARE **button**

The COMPARE button may be used to compare an altered parameter value to its stored value.

Note: If comparing an altered value to the stored value and the stored value is currently being viewed, turning a knob or pressing a button that changes the parameter value displayed will cancel the previous altered value. This will also occur if a MIDI control change is received while viewing the stored value(s).

6 PARAMETER **ADJUST** **control**

This control is used to adjust the displayed parameter value. When the parameter is altered from its stored value, the LED above the STORE button will light until either (a) the new value is stored, (b) a new preset is selected or (c) the parameter is returned to its original value.

7 STORE **button/led**

This button is used to store parameter values into the MultiValve™ memory when altered. See "Storing Changed Preset Parameters" in Chapter 7 for more information on this procedure.

8 PARAMETER **SELECT** **control**

When adjusting parameter values, this control will scroll through the available parameters under the current function heading.

In the "Title Edit" function, this control will scroll through the character locations to be edited.

9

FUNCTION SELECT control

This control allows access to each function of the MultiValve™. These functions include:

<i>Global</i>	<i>Delay</i>	<i>Chorus</i>	<i>Channel Switches</i>	<i>MIDI Channels</i>
<i>Mixer</i>	<i>Reverb</i>	<i>Pitch Shift</i>	<i>Title Edit</i>	<i>MIDI Dump/Load</i>
<i>Tube</i>	<i>HUSH</i>	<i>Tremolo</i>	<i>Rotary Speaker</i>	<i>Controller Assig</i>
<i>Factory Restore</i>	<i>Compressor</i>	<i>Phaser</i>	<i>Auto Pan</i>	<i>Copy</i>
<i>Remote Control</i>	<i>EQ</i>	<i>Flanger</i>	<i>Speaker Sim</i>	<i>Program Changes</i>
<i>Config Select</i>				

10

BYPASS button/led

When lit, the effects are bypassed and only the input signal is passed to the MultiValve™ outputs.

11

INPUT LEVEL meter

These LEDs provide visual indication of the peak level of the input signal when the preset number and title are displayed. For the optimal signal-to-noise ratio, it is best to adjust the input level so that the last LED (0dB) is rarely lit. This will guard against the possibility of overdriving the unit.

These LEDs also display the final digital mixer output levels when any other functions are displayed. This will help you to guard against clipping the output of the mixer at the digital-to-analog converter.

12

INPUT LEVEL control

This control adjusts the unit's gain to match the signal level at the input of the MultiValve™. Use the INPUT LEVEL meter to determine the setting of this control.

13

OUTPUT LEVEL control and **CLIP** LED

This control is used to adjust the overall output level of the unit.

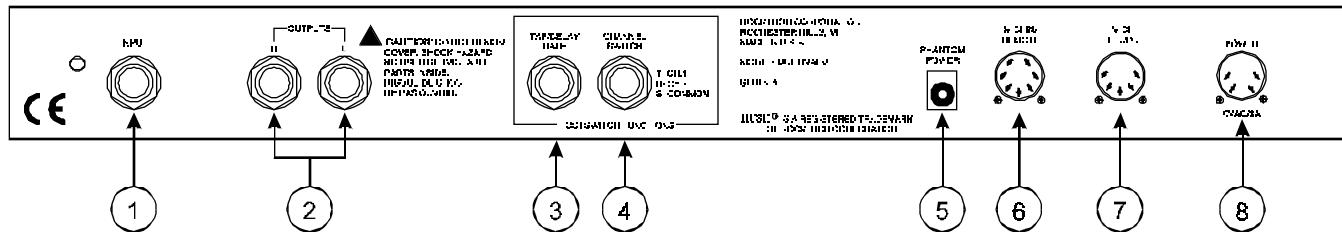
The CLIP L.E.D. is part of the output section and, when lit, indicates that the final analog output is being overdriven due to the Effects Level, Direct Level and Output Level being set too high. If this should occur, reduce these levels until the L.E.D. does not light.

14

REFERENCE LEVEL switch

This switch adjusts the output range of the unit and may be set at either -10dB or +4dB. When using the MultiValve™ with professional studio equipment providing a nominal input level of +4dB, it is recommended that the +4 setting is used for best results. If the MultiValve™ is to be connected to a high sensitivity input, such as the input to a guitar amp, the -10 setting should be used.

4. Rear Panel



1

INPUT jack

This 1/4" mono jack provides input to the MultiValve.

2

Left and Right OUTPUT jacks

These 1/4" mono jacks provide outputs from the left and right channels of the MultiValve™.

3

Tap Delay/Rate FOOTSWITCH jack

This 1/4" mono jack is provided for the connection of a momentary footswitch to control the Tap Delay feature of the MultiValve™.

4

CHANNEL SWITCH jack

This 1/4" stereo jack can be connected to the channel switching footswitch jack on an amplifier or preamp. This allows for programmable channel switching directly from the MultiValve™.

5

PHANTOM POWER jack

This 2.5mm PIN jack offers the ability to power Rocktron MIDI foot controllers from a 7-pin MIDI cable which connects from the Rocktron MIDI foot controller to the MIDI IN jack on the rear panel of the MultiValve™. This eliminates the need to find an AC outlet near where the footpedal would be placed during a performance, or the need to run an extension cord out to the footswitch. Instead of inserting the AC adaptor into the "POWER" jack of the footswitch as you would normally, plug it into the "PHANTOM POWER" jack on the MultiValve™. This will power the Rocktron MIDI foot controller through pins 6 and 7 of the MIDI cable connecting the two units. A 7-pin MIDI cable must be used and is available from your Rocktron dealer.

6

MIDI IN/REMOTE jack

This 7-pin DIN connector must be connected to the MIDI OUT jack of the transmitting MIDI device via a standard MIDI cable, or to the MIDI THRU jack of the preceding MIDI device (if the MultiValve™ is within a chain of MIDI devices). Pins 6 and 7 of this connector carry phantom power to power a Rocktron MIDI foot controller when a 7-pin MIDI cable is used.

This connector is also provided for the connection of a Rocktron All Access™ MIDI footswitch, which can be configured as a dedicated remote footswitch for the MultiValve™. This feature allows the user to access MultiValve™ functions and parameters via the remote footswitch.

7

MIDI THRU/OUT jack

This standard 5-pin DIN connector can be connected to the MIDI IN jack of another device via a standard MIDI cable. There are limitations to the number of devices that can be chained (or series connected) in this fashion.

Note: Inherently in MIDI there is a limit to the number of devices which can be chained together (connected in series). With more than 3 devices, a slight distortion of the MIDI signal can occur (due to signal degradation) which can cause an error in MIDI signal transmission. Should this problem arise, a MIDI Thru box can be used which connects directly to the MIDI device which transmits MIDI information and has multiple connectors for the multiple devices receiving MIDI. MIDI cables should not exceed 50 feet (15 meters) in length.

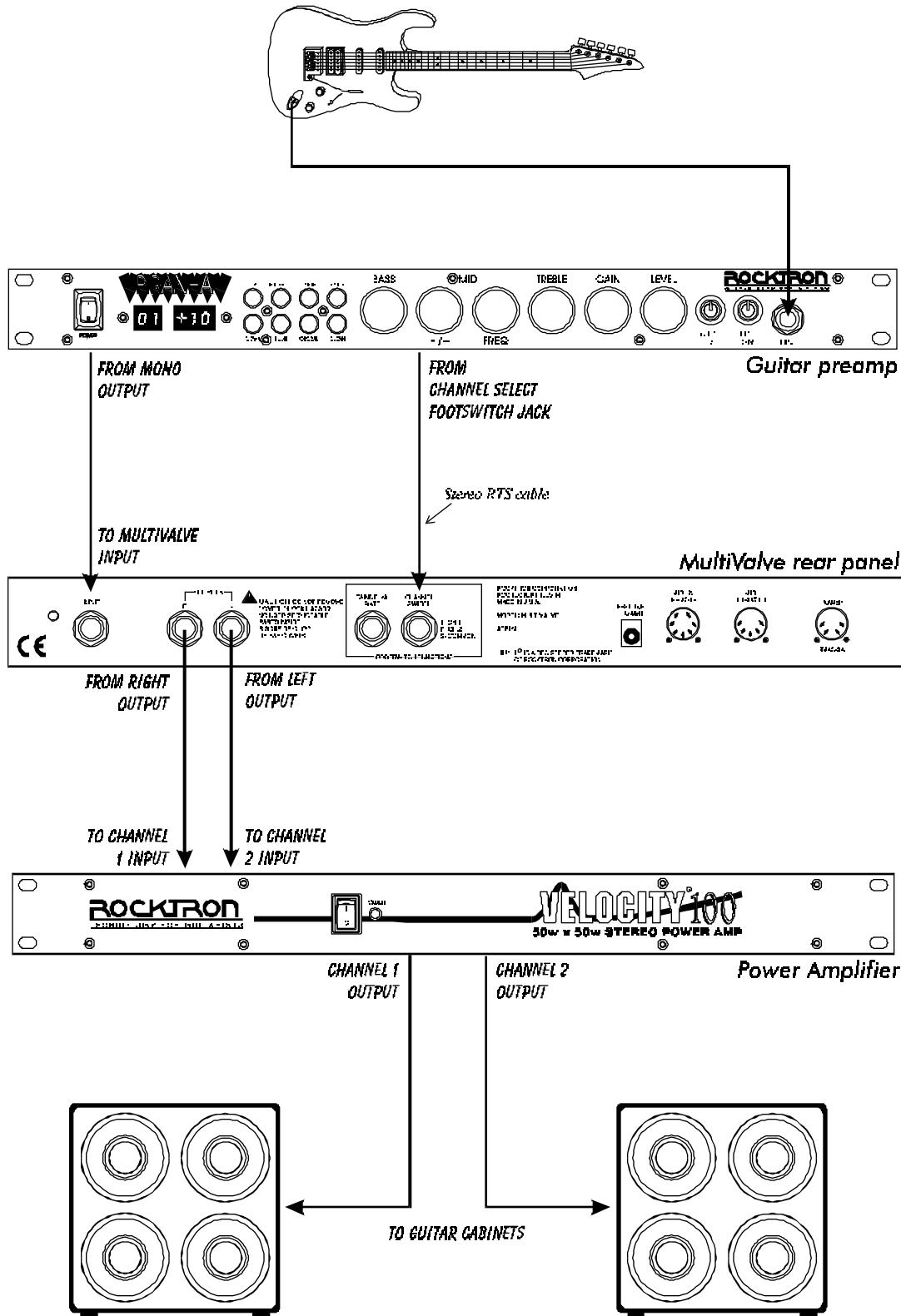
8

POWER jack

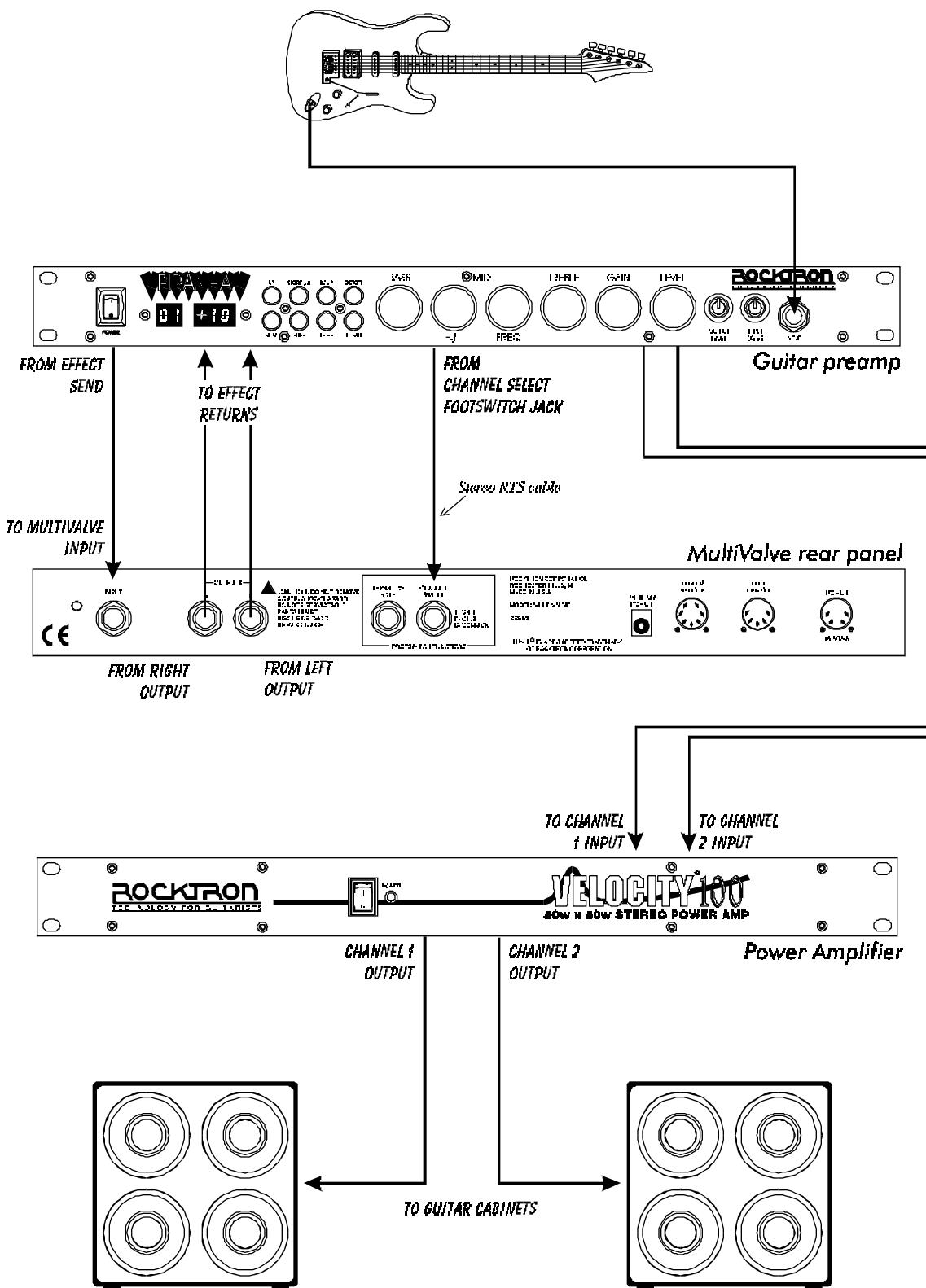
This 4-pin MIDI jack accepts power from the 9VAC adaptor supplied with the unit.

5. Connections

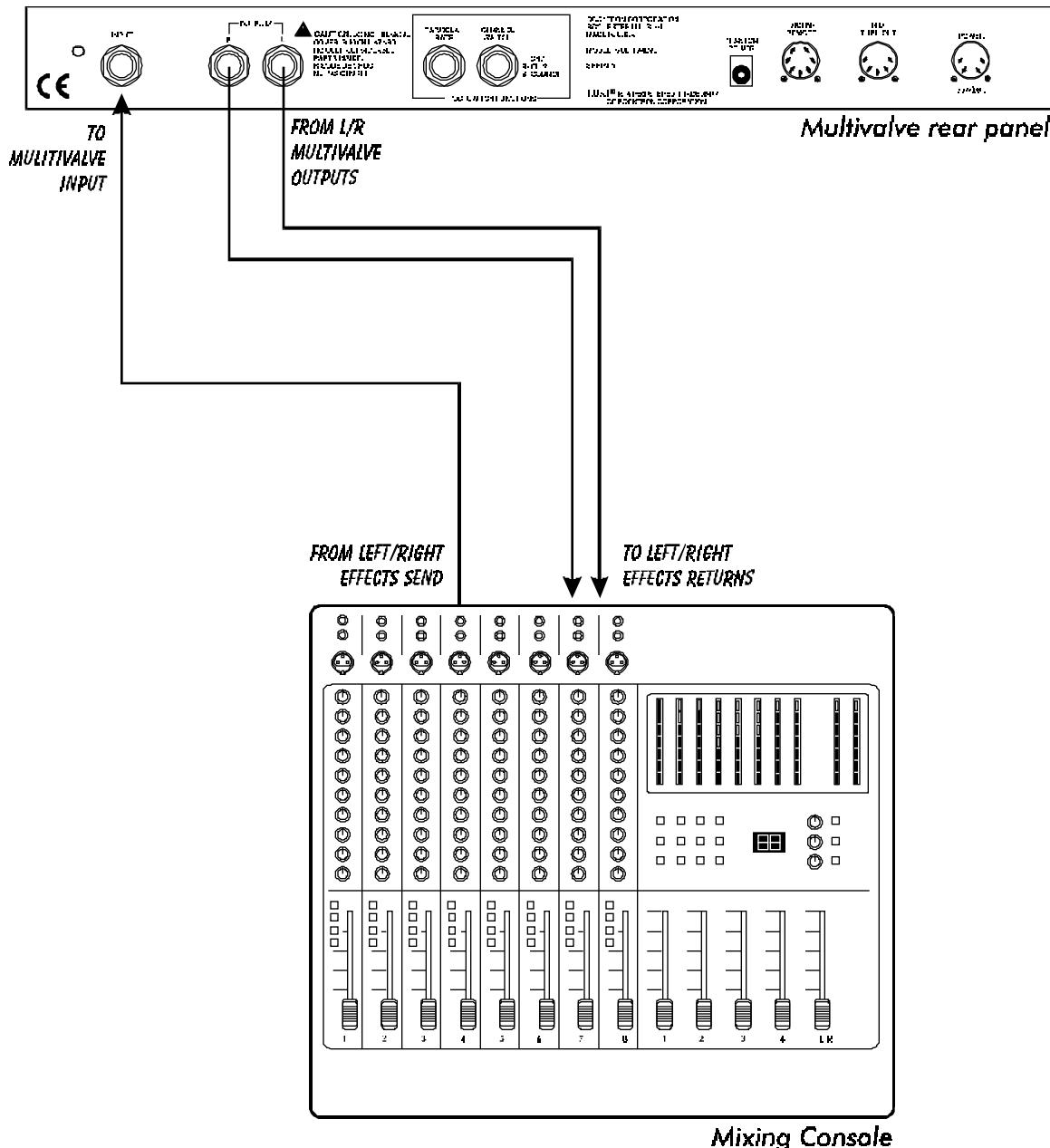
Using the MultiValve™ within a guitar rack system



Using the MultiValve™ in a preamp effects loop



Using the MultiValve™ with a mixing console



6. Operating Format

The MultiValve provides 128 stored sounds called **presets**. Any of the 128 presets can be called up at any time via the front panel PRESET control (used to both select and recall a preset).

The root of each preset's sound is its **configuration**. The MultiValve provides two main effect configurations—the *Classic* configuration and the *Rotary* configuration. Each configuration provides a different selection of available effects.

Classic configuration provides these effects:

- HUSH®
- Parametric EQ
- Flanger
- Chorus
- Reverb
- Compression
- Tremolo
- Auto Pan
- Delay
- Phaser
- Pitch Shift
- Speaker Simulator

Rotary configuration provides these effects:

- HUSH®
- Parametric EQ
- Rotary Speaker
- Reverb
- Compression
- Speaker Simulator
- Delay

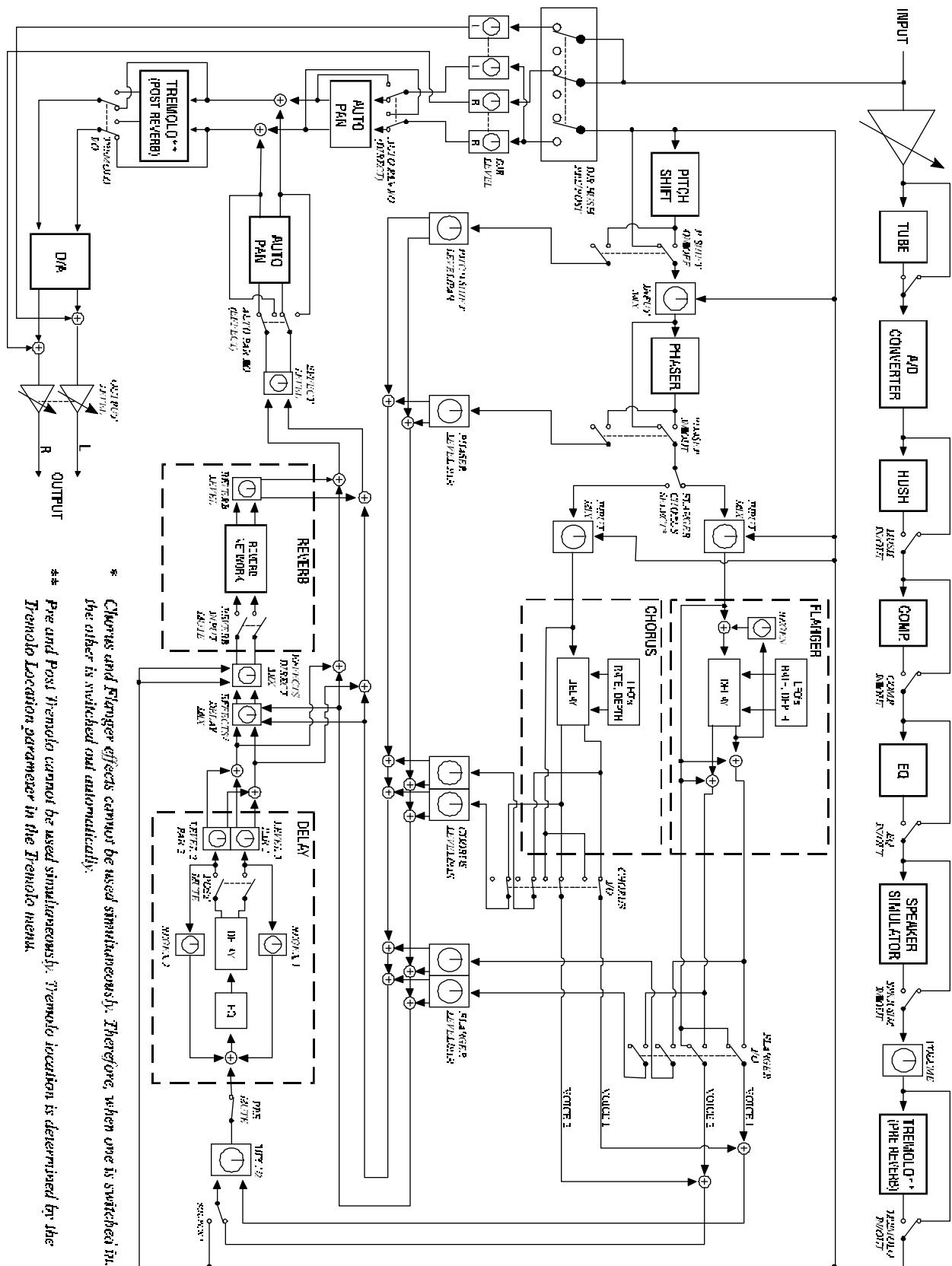
Any of the effects provided within a particular configuration may be switched in or out for each preset.

Tube Mode

In addition to the above effects, the signal path can also be routed through a 12AX7 tube to add a warm, vintage sound to your effects. Two levels of tube gain are provided.

The block diagrams on pages 12 and 13 illustrate the basic signal path for each configuration.

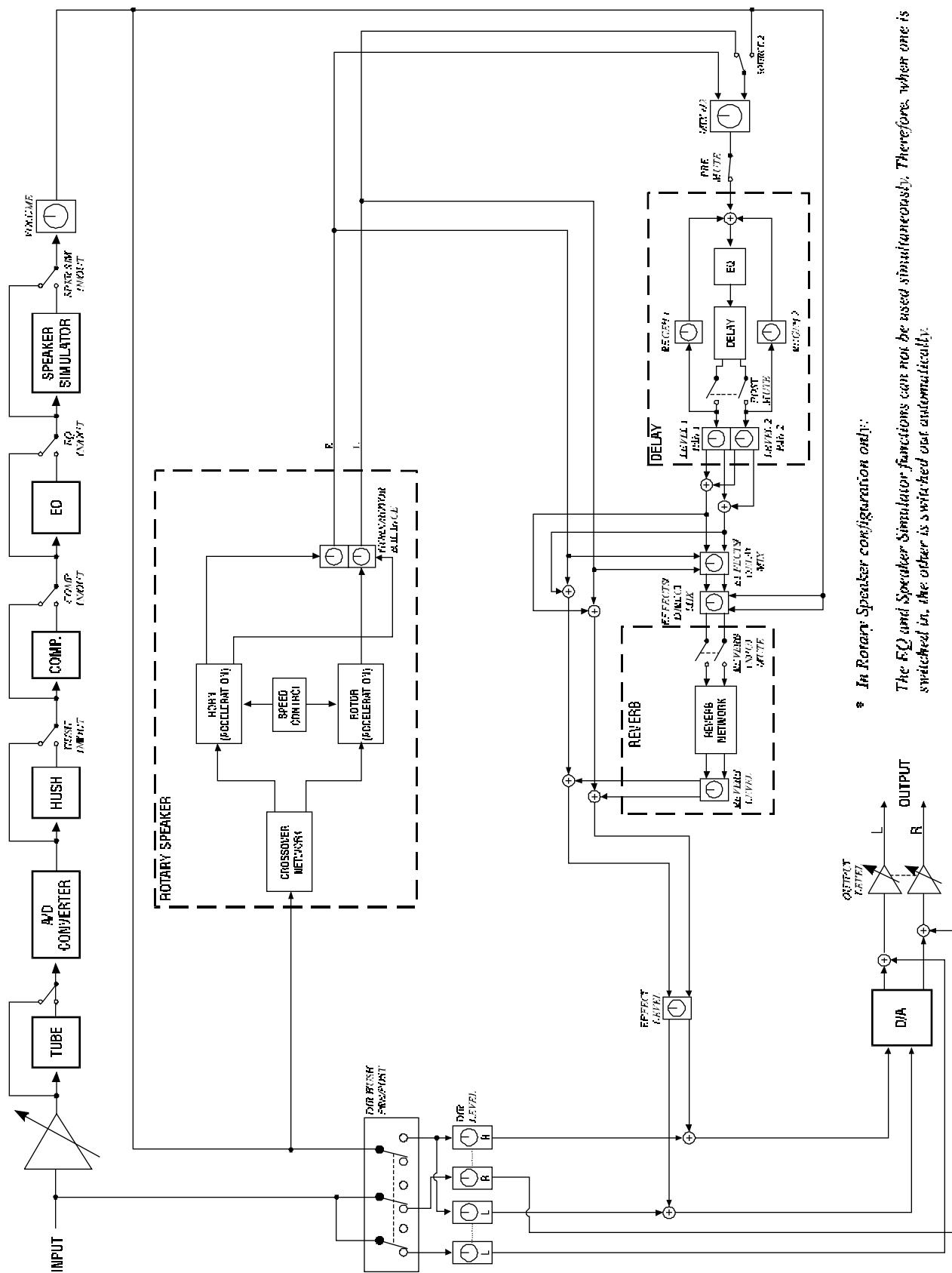
Classic Configuration Block Diagram



* Chorus and Flanger effects cannot be used simultaneously. Therefore, when one is switched in, the other is switched out automatically.

Pre and Post Tremolo cannot be used simultaneously. Tremolo location is determined by the Tremolo Location parameter in the Tremolo menu.

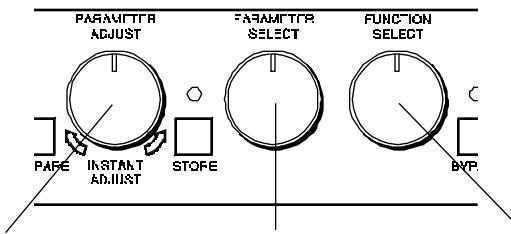
Rotary Configuration Block Diagram



MultiValve Functions and Parameter Descriptions

Each MultiValve preset is divided into individual blocks called **functions** (such as "Mixer", "Reverb", etc.). Within each function is a set of controls which allow you to manipulate various aspects of that function. These controls are called **parameters**. The setting of each of the parameters determines the overall sound of each MultiValve preset.

The MultiValve user interface is set up to allow you to first access each function (via the FUNCTION SELECT control), then the list of available parameters for the selected function (via the PARAMETER SELECT control) and, finally, the adjustable value for each parameter (via the PARAMETER ADJUST control).



Step 3:

Turn to alter the value of the selected parameter.

Step 2:

Turn to select a parameter within the selected function.

Step 1:

Turn to select a function.

The remainder of this section will discuss each of the effect-based functions and the associated adjustable parameters that they provide. Functions not discussed in this section are utility-based, and are described in Section 7, "Operating the MultiValve".

GLOBAL Function

The first function displayed when turning the FUNCTION SELECT control is the Global function. The parameters provided in this function affect all presets (i.e. the settings stored for these parameters are the same for all presets).

The PARAMETER SELECT control will allow you to access each of the following Global parameters:

OUTPUT

The OUTPUT parameter determines whether the output of the MultiValve is a stereo (left and right) signal or two mono signals.

HUSH OFFSET

The HUSH OFFSET parameter allows you to globally (all presets) adjust the HUSH® Expander Threshold. This means that if this parameter is altered from 0dB to +3dB, the Expander Threshold will be 3dB higher for all presets. This feature can be useful when switching from a quiet guitar with passive electronics to a noisy guitar with active electronics - as the active guitar would require a higher Threshold level in all presets.

MUTE

The MUTE parameter allows you to mute the output of the MultiValve. This feature is especially useful when changing guitars during a live set. When the MultiValve is muted, front panel controls are disabled. However, a MIDI program change will disable the mute (mute = out) and execute the program change.

The MUTE parameter can be assigned to a MIDI controller number for use with a MIDI device (such as a Rocktron All Access or Rocktron MIDI Mate).

DIRECT

The DIRECT parameter determines whether the direct signal is switched in or out of the signal path. When using the MultiValve in applications where the unit is connected in parallel, it is recommended that the direct signal is switched out - thereby providing 100% wet (effect) output.

MIXER Function

The next function displayed when turning the FUNCTION SELECT control is the Mixer function. The Mixer function parameters are included in all presets—regardless of which effects are active for the current preset - although the parameter values stored in this function are only for the currently recalled preset.

This digital mixer allows you to control the signal levels pertaining to each preset's configuration and stores those levels for each preset.

The PARAMETER SELECT control will allow you to access each of the following Mixer parameters:

LEFT DIR	The LEFT DIRECT parameter determines the level of the direct signal of the current preset at the left output.
RIGHT DIR	The RIGHT DIRECT parameter determines the level of the direct signal of the current preset at the right output.
EFFECT LEVEL	The EFFECT LEVEL parameter determines the volume of the overall effect signal (Chorus, Flange, Pitch Shift, etc.) level.
DIRECT	The DIRECT parameter determines whether the direct signal is pre-HUSH or post-HUSH. When set to pre-HUSH, the direct signal is not passed through the HUSH circuitry, or any other digital circuitry (i.e., the direct signal remains analog from input to output). When set to post-HUSH, the direct signal is passed through the digital HUSH circuitry.
PHS DIR/EFF CHR DIR/EFF FLN DIR/EFF REV DIR/EFF	These DIR/EFF parameters determine the amount of direct signal input to each individual effect relative to the amount of effect signal. A setting of "0" is 100% direct signal, while a setting of "100" is 100% effect signal.
VOLUME	The VOLUME parameter determines the overall signal level of the current preset.

TUBE MODE Function

The Tube Mode function is accessible in all presets—regardless of the current configuration recalled.

The Tube Mode function allows the input signal path to be routed through a high quality 12AX7 preamp tube to add a warm, vintage sound to the MultiValve effects used.

The PARAMETER SELECT control will allow you to access each of the following Tube Mode parameter:

TUBE MODE

When set to *BYPASS*, the input signal completely bypasses the tube circuitry.

When set to *LOW*, the input signal is routed through the tube at a low gain setting, resulting in subtle clipping.

When set to *HIGH*, the input signal is routed through the tube at a higher gain setting, resulting in larger amounts of clipping and distortion.

HUSH Function

The HUSH® function is accessible in all presets—regardless of the configuration currently recalled.

HUSH is Hush Systems' patented single-ended noise reduction system. The HUSH system contained in the MultiValve is a fully digital implementation of HUSH achieved through Digital Signal Processing (DSP), and is modeled after the latest HUSH design.

The low level expander of the HUSH system operates like an electronic volume control. The analog version of the HUSH utilizes a voltage-controlled amplifier (VCA) circuit which can control the gain between the input and the output from unity to 30, 40 or even 50dB of gain reduction. When the input signal is above the user preset threshold point, the VCA circuit remains at unity gain. (This means that the amplitude of the output signal will be equal to that of the input signal.) As the input signal level drops below the user preset threshold point, downward expansion begins. At this point the expander acts like an electronic volume control and gradually begins to decrease the output signal level relative to the input signal level. As the input signal drops further below the threshold point, downward expansion increases. A drop in the input level by 20dB would cause the output level to drop approximately 40dB (i.e., 20dB of gain reduction). In the absence of any input signal, the expander will reduce the gain so that the noise floor becomes inaudible.

The HUSH circuit is located after the A/D converter in the signal chain to reduce any noise generated from the guitar, any guitar preamp and the A/D converter. This ensures a quiet input signal to the MultiValve effects.

When the DIRECT HUSH parameter under the Mixer function is set to "Post", the direct signal is passed through the HUSH circuit. When set to "Pre", the direct signal remains analog and does not pass through the HUSH circuit.

The PARAMETER SELECT control will allow you to access each of the following Hush parameters:

HUSH I/O

The HUSH I/O parameter determines whether the HUSH circuit is active or bypassed for the current preset.

EXP THRESH

The EXPANDER THRESHOLD parameter determines the level at which downward expansion begins. For example, if the EXPANDER THRESHOLD was set at -20dB and the input signal dropped below -20dB, downward expansion would begin.

COMPRESSOR

Function

Compression is often used to maintain an even level when using clean tones, and is also used to increase sustain when using high gain distortion.

The PARAMETER SELECT control will allow you to access each of the following Compressor parameters:

COMPRESR I/O	The COMPRESSOR I/O parameter determines whether the compression circuit is active or bypassed for the current preset.
COMP THRESH	The COMPRESSOR THRESHOLD parameter determines the input level (in dB) at which compression will begin. Lower settings of this parameter will result in more compression.
COMP ATTACK	The COMPRESSOR ATTACK parameter determines the speed (in milliseconds) at which the compressor will reach its maximum compression level after the input signal has exceeded the threshold level (set by the COMPRESSOR THRESHOLD parameter).
COMP RELEASE	The COMPRESSOR RELEASE parameter determines the speed at which compression will cease after the input signal has dropped below the threshold level.

EQ

Function

The EQ function provides full parametric control and allows you to shape the tone of the input signal before it reaches each of the effect blocks.

The PARAMETER SELECT control will allow you to access each of the following EQ parameters:

EQ I/O	The EQ I/O parameter determines whether the EQ circuit is active or bypassed for the current preset.
BASS LVL	The BASS LEVEL parameter allows you to cut or boost the low frequencies by up to 15dB.
BASS FREQ	The BASS FREQUENCY parameter allows you to select a center frequency between 63Hz and 500Hz to be cut or boosted by the BASS LEVEL parameter.
BASS BW	The BASS BANDWIDTH parameter determines (in octaves) the width of the selected bass band.
MID LVL	The MID LEVEL parameter allows you to cut or boost the mid band frequencies by up to 15dB.
MID FREQ	The MID FREQUENCY parameter determines a mid band center frequency between 250Hz and 2KHz to be cut or boosted via the MID LEVEL parameter.
MID BW	The MID BANDWIDTH parameter determines (in octaves) the width of the selected mid band.
TREBLE LVL	The TREBLE LEVEL parameter allows you to cut or boost the high band frequencies by up to 15dB.
TREBL FRQ	The TREBLE FREQUENCY parameter determines a high band center frequency between 1KHz and 8KHz to be cut or boosted via the TREBLE LEVEL parameter.
TREBLE BW	The TREBLE BANDWIDTH parameter determines (in octaves) the width of the selected high band.
PRESENCE LVL	The PRESENCE LEVEL parameter allows you to cut or boost an additional high band frequency by up to 15dB.
PRES FREQ	The PRESENCE FREQUENCY parameter allows you to select a high band center frequency between 2KHz and 8KHz to be cut or boosted via the PRESENCE LEVEL parameter.
PRES BW	The PRESENCE BANDWIDTH parameter determines (in octaves) the width of the selected high band.

DELAY Function

Delay provides a reproduction of the input signal, occurring at a prescribed time (usually expressed in milliseconds) following the input signal. The MultiValve provides two discrete delays (Delay 1 and Delay 2), each of which has its own set of parameters to determine its particular characteristics.

The PARAMETER SELECT control will allow you to access each of the following Delay parameters:

DELAY I/O The DELAY I/O parameter determines whether the delay circuit is active or bypassed for the current preset.

MUTE TYPE The MUTE TYPE parameter allows for muting the delay at its input (PRE), its output (POST) or BOTH.

Muting the input (PRE) of the delay will not allow any signal to enter the delay section until the delay is switched in. When using a moderate amount of regeneration, switching out the delay with the input muted will allow you to generate a non-delayed signal which will play over the decaying regenerated signal which continues on after the delay is switched out.

Muting the output (POST) of the delay will result in the delayed signal being immediately turned off when the delay is switched out. This means that delays and regeneration will not continue when the delay is switched out. If the output were not muted, signals that were input before the delay was switched out would be allowed to regenerate, even after switching out the delay.

It is also possible to mute both the input and the output (BOTH) so that no signal enters or exits the Delay section until it is switched in.

TIME1 The TIME1 parameter determines the multiplier by which a new delay time will be selected for Delay Time 1 when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)

TIME2 The TIME2 parameter determines the multiplier by which a new delay time will be selected for Delay Time 2 when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)

DELAY LVL The DELAY LEVEL parameter determines the overall level of the delayed signal at the output of the MultiValve.

D-MIX S1/S2 The D-MIX S1/S2 parameter defines the ratio of Source 1 signal to Source 2 signal to be input to the Delay section. Source 1 is the Voice 1 output from the previous effect in the signal chain (chorus, flanger, pitch shifter, etc.), while Source 2 may be the Voice 2 output from the previous effect in the signal chain or the direct signal (selectable via the SOURCE 2 parameter). (Refer to the block diagrams shown on pages 12 and 13 for a visual representation of the input to the Delay section.)

**Note!**

When delays from the current preset are spilled over into the next preset recalled (i.e. SPILLOVER "ON"), the delay parameters for the new preset will be changed to match those of the previous preset (except for the DELAY I/O and SPILLOVER parameters) - even if the Delay effect is switched "OUT" in the previous preset.

The EFFECT LEVEL parameter in the next preset recalled does not change, therefore delays spilled into it may be of higher or lower volume - depending on the EFFECT LEVEL setting in each preset.

Also, recalling the same preset twice via MIDI will cancel the Spillover effect and reset the new preset to its stored parameter values (only when the SPILLOVER parameter in the recalled parameter is set "OFF").

SOURCE 2	This parameter is used to select whether the Source 2 input will be the VOICE 2 output from the previous effect in the signal chain or the direct signal. In configurations where there is no effect immediately preceding the delay, both Source 1 and Source 2 will be the direct signal.
DLY HF DAMP	The DELAY HIGH FREQUENCY DAMPING parameter controls the amount of high frequency content in the delayed and regenerated signals. Higher amounts of damping will result in less high frequency information in the delayed signal.
DELAY OUT 1	The DELAY OUT 1 parameter determines the volume of Delay 1.
DLY PAN1	The DLY PAN1 parameter allows you to pan the Delay 1 signal to the left or right channel.
DELAY TIME1	The DELAY TIME1 parameter determines the length of time (in milliseconds) after the input signal that the Delay 1 signal will begin. The DELAY TIME can be adjusted via the PARAMETER ADJUST control, MIDI controller changes or via the Tap Delay feature.
FINE 1	The FINE 1 parameter allows for adjustment of Delay 1 in 1 millisecond increments.
DLY RGN 1	The DLY RGN 1 parameter determines how many times the Delay 1 signal is fed back into the input and repeated.
DELAY OUT 2	The DELAY OUT 2 parameter determines the volume of Delay 2.
DLY PAN2	The DLY PAN2 parameter allows you to pan the Delay 2 signal to the left or right channel.
DELAY TIME2	The DELAY TIME2 parameter determines the length of time (in milliseconds) after the input signal that the Delay 2 signal will begin. The DELAY TIME can be adjusted via the PARAMETER ADJUST control, MIDI controller changes or via the Tap Delay feature.
FINE 2	The FINE 2 parameter allows for adjustment of Delay 2 in 1 millisecond increments.
DLY RGN 2	The DLY RGN 2 parameter determines how many times the Delay 2 signal is fed back into the input and repeated.
D>SPILLOVER	The SPILLOVER parameter determines whether delays from the current preset will "spill over" into the next preset when it is recalled.

REVERB

Function



Note!

When reverb from the current preset is spilled over into the next preset recalled (SPILLOVER "ON"), the reverb parameters for the new preset will be changed to match those of the previous preset (except for the REV INPUT and SPILLOVER parameters) - even if the Reverb effect itself is switched "OUT" in the previous preset.

The EFFECT LEVEL parameter in the next preset recalled does not change, therefore reverb spilled into it may be of higher or lower volume - depending on the EFFECT LEVEL setting in each preset.

Also, recalling the same preset twice via MIDI will cancel the Spillover effect and reset the new preset to its stored parameter values (only when the SPILLOVER parameter in the recalled parameter is set "OFF").

Reverb is a multitude of echos spaced so close together that, to the human ear, seem as a single continuous sound. These echos gradually decrease in intensity until they are ultimately absorbed by the boundaries and obstacles within a room. As the sound waves from the sound source strike the boundaries of a room, a portion of the energy is reflected away from the obstacle while another portion is absorbed into it - thereby causing both the continuance of sound as well as the decaying or "dying out" of the sound.

The PARAMETER SELECT control will allow you to access each of the following Reverb parameters:

REV INPUT

The REV INPUT parameter determines whether the reverb circuit is active or bypassed for the current preset.

R-MIX EFF/DLY

The R-MIX EFFECT/DELAY parameter is used to define the ratio of direct signal to delayed signal to be input to the reverb section.

REVERB LVL

The REVERB LEVEL parameter allows you to control the level of the reverb signal at the output of the MultiValve relative to the direct signal and other effect signals.

REV DECAY

The REVERB DECAY parameter determines the length of time that the reverb signal will sound before it has completely died out.

REV HF DAMP

The REVERB HIGH FREQUENCY DAMPING parameter is used to control the decay rate of high frequency information in the reverb signal. Higher parameter settings will result in a faster decay of high frequency information.

R>SPILLOVER

The R>SPILLOVER parameter determines whether reverbs generated in the current preset will continue decaying when the next preset is recalled. When switched off, reverbs will be abruptly cut off when the next preset is recalled.

TREMOLO Function

The Tremolo effect continuously varies the volume of the signal.

The PARAMETER SELECT control will allow you to access each of the following Tremolo parameters:

TREMOLO I/O	The TREMOLO I/O parameter determines whether the tremolo circuit is active or bypassed for the current preset.
LOCATION	The LOCATION parameter determines whether the Tremolo is located Pre-Reverb or Post-Reverb. Most vintage amplifiers used the tremolo in a Post-Reverb configuration.
TREM DPTH	The TREMOLO DEPTH parameter determines the amount of modulation for the Tremolo signal. Lower DEPTH settings produce more subtle tremolo effects, while higher settings will result in a more extreme tremolo effect.
TREM RATE	The TREMOLO RATE parameter determines the speed at which the tremolo signal modulates (or increases and decreases in volume).
SHAPE	The SHAPE parameter determines the waveshape of the tremolo signal. Selecting a different waveshape produces a different tremolo effect.
TIME	The TIME parameter determines the multiplier by which a new modulation rate will be selected for the RATE parameter when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)

PHASER Function

Phase shifting involves splitting the input signal into two signals, then shifting the phase of different frequencies of one signal before mixing it back with the original signal.

The PARAMETER SELECT control will allow you to access each of the following Phaser parameters:

PHASER I/O	The PHASER I/O parameter determines whether the phase shift circuit is active or bypassed for the current preset.
PSR PAN	The PHASER PAN parameter allows you to pan the phase shifted signal to the left or right channel by any amount.
PSR DEPTH	The PHASER DEPTH parameter determines the modulation depth of the phase shift effect. Higher parameter settings result in the sweep of the filtering effect occurring over a wider frequency range.
RATE	The RATE parameter determines the speed at which the phase shifted signal is modulated.
P>RESONANCE	The PHASER RESONANCE parameter adds feedback to the Phaser so that it has a more pronounced effect.
PSR STAGES	The PHASER STAGES parameter determines how many stages of phase shift are to be active. A parameter setting of "4" produces a result similar to a vintage Phase 90, while a setting of "6" emulates other common phaser pedals.
TIME	The TIME parameter determines the multiplier by which a new modulation rate will be selected for the RATE parameter when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)
PHASER LVL	The PHASER LEVEL parameter allows you to control the level of the phaser signal at the output of the MultiValve relative to the direct signal and other effect signals.

FLANGER Function

Flanging splits the input signal into two individual delayed signals (*Voice 1 and Voice 2*), then modulating the delayed signals so that, when summed back with the direct signal, phase cancellations will occur at some frequencies while peaks in the response will occur at others.

The PARAMETER SELECT control will allow you to access these FLANGER parameters:

FLANGER I/O	The FLANGER I/O parameter determines whether the flange circuit is active or bypassed for the current preset.
FLN OUT 1	The FLANGER OUTPUT 1 parameter determines the overall volume of Voice 1.
FLN PAN1	The FLANGER PAN 1 parameter allows you to pan Voice 1 to the left or right channel.
FLN DPTH 1	The FLANGER DEPTH 1 parameter adjusts the amount of modulation of Voice 1. Lower DEPTH settings produce more subtle effects, while higher settings will result in a more drastic effect.
FLN RATE 1	The FLANGER RATE 1 parameter determines the speed at which Voice 1 is modulated.
TIME1	The TIME1 parameter determines the multiplier by which a new modulation rate will be selected for the RATE 1 parameter when the Tap Delay feature of the MultiValve is used. (<i>See Section 7: "Tap Delay" for more information on the Tap Delay feature.</i>)
FLN OUT 2	The FLANGER OUTPUT 2 parameter determines the overall volume of Voice 2.
FLN PAN2	The FLANGER PAN 2 parameter allows you to pan Voice 2 to the left or right channel.
FLN DPTH 2	The FLANGER DEPTH 2 parameter adjusts the amount of modulation of Voice 2. Lower DEPTH settings produce more subtle effects, while higher settings will result in a more drastic effect.
FLN RATE 2	The FLANGER RATE 2 parameter determines the speed at which Voice 2 is modulated.
TIME2	The TIME2 parameter determines the multiplier by which a new modulation rate will be selected for the RATE 2 parameter when the Tap Delay feature of the MultiValve is used. (<i>See Section 7: "Tap Delay" for more information on the Tap Delay feature.</i>)
FLN REGEN	The FLANGER REGENERATION parameter determines how much of the delayed output signal is fed back into the input. More regeneration produces a more pronounced "jet airplane" type of effect.

CHORUS Function

The Chorus effect in the MultiValve is produced by detuning two delayed signals (Voice 1 and Voice 2), then modulating the detune effect so that the amount of pitch detune is constantly varying. Using different detune amounts, modulation rates, modulation depths and pan settings for each delayed signal will produce a greater perceived spaciousness.

The PARAMETER SELECT control will allow you to access each of the following Chorus parameters:

CHORUS I/O	The CHORUS I/O parameter determines whether the chorus circuit is active or bypassed for the current preset.
CRS OUT 1	The CHORUS OUTPUT 1 parameter determines the volume of Voice 1.
CRS PAN 1	This parameter allows you to pan Voice 1 to the left or right channel.
CRS DPTH 1	The CHORUS DEPTH 1 parameter adjusts the amount of modulation of the Voice 1 signal. A lower depth setting will produce a more subtle detune effect, while a higher setting results in a more extreme detuning of Voice 1.
CRS RATE 1	The CHORUS RATE 1 parameter determines the sweep speed (or the speed at which Voice 1 is modulated).
CRS>DLY1	This parameter allows you to select the minimum delay time (in milliseconds) for Voice 1. This delayed signal (along with Voice 2) is detuned and modulated to produce the chorus effect. Using shorter delay times will result in a tighter sounding chorused signal, while longer delay times will produce a larger ambient effect.
TIME1	The TIME 1 parameter determines the multiplier by which a new modulation rate will be selected for the RATE 1 parameter when the Tap Delay feature of the MultiValve is used.
CRS OUT 2	The CHORUS OUTPUT 2 parameter determines the volume of Voice 2.
CRS PAN 2	This parameter allows you to pan Voice 2 to the left or right channel.
CRS DPTH 2	The CHORUS DEPTH 2 parameter adjusts the amount of modulation of the Voice 2 signal. A lower depth setting will produce a more subtle detune effect, while a higher setting will produce a more extreme detuning of Voice 2.
CRS RATE 2	The CHORUS RATE 2 parameter determines the sweep speed (or the speed at which Voice 2 is modulated).
CRS>DLY 2	This parameter allows you to select the minimum delay time (in milliseconds) for Voice 2. This delayed signal (along with Voice 1) is detuned and modulated to produce the chorus effect. Using shorter delay times will result in a tighter sounding chorused signal, while longer delay times will produce a larger ambient effect.
TIME2	The TIME 2 parameter determines the multiplier by which a new modulation rate will be selected for the RATE 2 parameter when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)

PITCH SHIFT Function

Pitch Shifting is used to change the pitch of the input signal to produce a harmony note based on the input signal. The harmony voice may be of any fixed interval - up to one octave above the input signal to two octaves below - and is selected in 20-cent increments. Fine adjustment can be made in one cent (1/100th semitone) increments.

The PARAMETER SELECT control will allow you to access each of the following Pitch Shift parameters:

PITCH SH I/O

The PITCH SHIFT I/O parameter determines whether the pitch shift circuit is active or bypassed for the current preset.

PSHIFT OUT

The PITCH SHIFT OUTPUT parameter determines the volume of the pitch shifted signal. The DIR/EFF MIX parameter in the Mixer function also affects this volume.

PS PAN

The PITCH SHIFT PAN parameter allows you to pan the shifted signal to the left or right channel.

PITCH

The PITCH parameter selects what harmony note the MultiValve will produce based on the input note. The value displayed for this parameter represents the number of *cents* that the signal will be shifted (adjustable in 20-cent increments). Each 100 cents (or five 20-cent steps) above or below "0" represents the number of half-steps the shifted signal will be from the input signal.

This parameter is adjustable from "-2400" to "+1200", where "-2400" = two octaves below the input signal, "0" = unison and "+1200" = one octave above the input signal. Refer to the table on the following page to determine the cent value for each fixed interval.

FINE

The FINE parameter allows for adjustment in 1-cent steps for fine adjustment of the harmony note.

PS-SPEED

The PITCH SHIFT SPEED parameter determines the amount of time delay used in the shifting process. SLOW results in the longest delay and the highest quality shifted signal (especially at larger amounts of pitch shift). FAST results in the least delay, but the lowest quality shifted signal. This setting should only be used for slight amounts of pitch shift.

PITCH SHIFT INTERVALS

PARAMETER VALUE	CORRESPONDING INTERVAL	
+1200	one octave	
+1100	Major 7th	
+1000	minor 7th	
+900	Major 6th	
+800	minor 6th	
+700	perfect 5th	<i>Voces above the input signal</i>
+600	diminished 5th	
+500	perfect 4th	
+400	Major 3rd	
+300	minor 3rd	
+200	Major 2nd	
+100	minor 2nd	
0	Unison	<i>Equal to the input signal</i>
-100	Major 7th	
-200	minor 7th	
-300	Major 6th	
-400	minor 6th	
-500	perfect 5th	
-600	diminished 5th	
-700	perfect 4th	
-800	Major 3rd	
-900	minor 3rd	
-1000	Major 2nd	
-1100	minor 2nd	
-1200	1 Octave	
-1300	One octave plus a Major 7th	<i>Voces below the input signal</i>
-1400	One octave plus a minor 7th	
-1500	One octave plus a Major 6th	
-1600	One octave plus a minor 6th	
-1700	One octave plus a perfect 5th	
-1800	One octave plus a diminished 5th	
-1900	One octave plus a perfect 4th	
-2000	One octave plus a Major 3rd	
-2100	One octave plus a minor 3rd	
-2200	One octave plus a Major 2nd	
-2300	One octave plus a minor 2nd	
-2400	2 Octaves	

NOTE: There are 5 steps of the parameter adjust control between each of the intervals shown above (each step equals 20 cents). This allows for smooth pitch change when an expression controller (such as a volume pedal used with a Rocktron All Access or MIDI Mate foot controller) is assigned to the PITCH parameter to change the pitch by remote means.

AUTO PAN Function

The next function displayed when turning the FUNCTION SELECT control is the Auto Pan function. The Auto Pan effect automatically pans between left and right when operating in stereo mode. (If operating in mono, the Auto Pan effect does not operate.)

The PARAMETER SELECT control will allow you to access each of the following Auto Pan parameters:

AUTO PAN I/O	The AUTO PAN I/O parameter determines whether the auto pan circuit is active or bypassed for the current preset.
LOCATION	The LOCATION parameter determines what part of the signal path is affected by Auto Pan - <i>Direct Only</i> , <i>Effects Only</i> or <i>Both</i> .
APAN RATE	The AUTO PAN RATE parameter determines the speed at which the signal is panned between the Left and Right channels.
APAN WIDTH	The AUTO PAN WIDTH parameter determines the intensity at which the signal is panned between the Left and Right channels.
TIME	The TIME parameter determines the multiplier by which a new modulation rate will be selected for the RATE parameter when the Tap Delay feature of the MultiValve is used. (See Section 7: "Tap Delay" for more information on the Tap Delay feature.)

ROTARY SPEAKER Function

*For added versatility when using continuous control, the SLOW SPEED and FAST SPEED parameters cover the same range (0 to 100). Therefore, it is possible to have a SLOW setting which is faster than the FAST setting.

The next function displayed when turning the FUNCTION SELECT control is the Rotary Speaker function. The Rotary Speaker effect simulates the classic rotating speaker popular with guitarists and keyboard players. It is designed to mimic the characteristics of the classic mechanical rotating speaker with added versatility afforded by DSP.

The PARAMETER SELECT control will allow you to access each of the following Rotary Speaker parameters:

ROTR SPK I/O	The ROTR SPK I/O parameter determines whether the simulated speaker is rotating or not.
ROT SPEED	The ROTATION SPEED parameter switches between the SLOW SPEED and FAST SPEED setting..
R>SPKR SLOW*	The ROTARY SPEAKER SLOW parameter sets the <i>slow</i> rotation speed. (The horn and rotor will rotate at slightly different speeds.)
R>SPKR FAST*	The ROTARY SPEAKER FAST parameter sets the <i>fast</i> rotation speed.
ROT SPK ACCEL	The ROTARY SPEAKER ACCELERATION parameter adjusts how long it takes to reach the FAST SPEED or SLOW SPEED setting of both the horn and the rotor. (The horn will accelerate faster than the rotor.)
ROT BAL	The BALANCE parameter adjusts the relative level of the rotor (lows) vs. the horn (highs).

SPEAKER SIMULATOR Function

The Speaker Simulator function provides a realistic approximation of a miked speaker cabinet for applications involving connecting the MultiValve directly to a mixing console, recording system or other full range system.

The PARAMETER SELECT control will allow you to access each of the following Speaker Simulator parameters:

SPKR SIM I/O	The SPEAKER SIMULATOR I/O parameter determines whether the speaker simulator circuit is active or bypassed for the current preset.
SPKR TYPE	The SPEAKER TYPE parameter determines the type of speaker to be simulated. 15", 12" 10", 8" and full range speakers are available.
MIC PLACEMENT	The MIC PLACEMENT parameter simulates a microphone placed anywhere from the center of the speaker cone out to the edge of the cone. Positive parameter values simulate moving the microphone toward the center of the speaker, while negative values move it to the edge.
REACTANCE	The REACTANCE parameter simulates the characteristics of the interaction between a tube amplifier and a guitar speaker cabinet. The higher the parameter value selected, the more these characteristics will be apparent. Negative values of reactance can be used to simulate an open-back cabinet.

Master MultiValve™ Effects Parameter List

(The actual functions displayed are configuration-dependent)

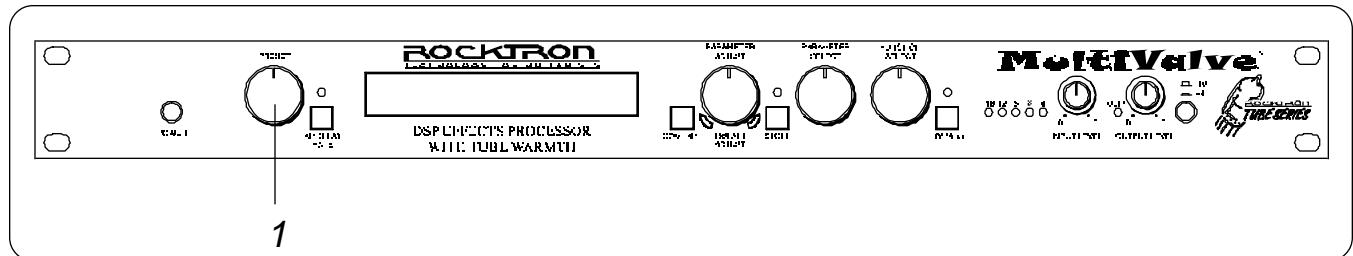
Function (via FUNCTION SELECT control)	Parameter (via PARAMETER SELECT control)	Parameter Range (via PARAMETER ADJUST control)
GLOBAL	OUTPUT HUSH OFFSET MUTE DIRECT	Stereo, Mono -10dB to +30dB Out, In Out, In
MIXER	LEFT DIR RIGHT DIR EFFECT LEVEL DIRECT PHS DIR/EFF CHR DIR/EFF FLN DIR/EFF REV DIR/EFF VOLUME	-∞ to +6dB -∞ to +6dB -∞ to +6dB Pre, Post Direct<0 to 100>Effect Direct<0 to 100>Effect Direct<0 to 100>Effect Direct<0 to 100>Effect 0 to 127
TUBE	TUBE MODE	Bypass, Low, High
HUSH	HUSH I/O EXPTHRESH	Out, In -90 to -27
COMPRESSOR	COMPRESR I/O COMP THRESH COMP ATTACK COMP RELEASE	In, Out -30dB to -6dB 1ms to 75ms .05 to 2 seconds
EQ	EQ I/O BASS LVL BASS FREQ BASS BW MID LEVEL MID FREQ MID BW TREBL LVL TREBL FRQ TREBLE BW PRES LVL PRES FREQ PRES BW	Out, In -15dB to +15dB 63Hz to 500Hz .2 to 2 octaves -15dB to +15dB 250Hz to 2kHz .2 to 2 octaves -15dB to +15dB 1kHz to 8kHz .2 to 2 octaves -15dB to +15dB 2kHz to 8kHz .2 to 2 octaves
DELAY	DELAY I/O MUTE TYPE TIME1 TIME2 DELAY LVL D-MIX S1/S2 SOURCE2 DLY HF DAMP DELAY OUT 1 DLY PAN1	Out, In Pre, Post 32nd, 16th, 8th, Triplet, ¼, ½, or None 32nd, 16th, 8th, Triplet, ¼, ½, or None -∞ to 0dB Source 1<0 to 100>Source 2 Direct, Voice 2 0 to 99 -∞ to 0dB Left<0 to 100>Right

Function	Parameter	Range
	(via FUNCTION SELECT control)	(via PARAMETER SELECT control)
	DLY TIME1 FINE 1 DLY RGN 1 DELAY OUT 2 DLY PAN2 DLY TIME2 FINE 2 DLY RGN 2 D>SPILLOVER	0ms to 1000ms 0ms to 9ms -∞ to 0dB -∞ to 0dB Left<0 to 100>Right 0ms to 1000ms 0ms to 9ms -∞ to 0dB Off, On
REVERB	REV INPUT R-MIX EFF/DLY REVERB LVL REV DECAY REV HF DAMP R>SPILLOVER	Muted, Active Effect<0 to 100>Delay -∞ to 0dB 0 to 99 0 to 99 Off, On
TREMOLO	TREMOLO I/O LOCATION TREM DPTH TREM RATE SHAPE TIME	Out, In Pre-Rev, Post-Rev 0 to 100 0 to 254 Triangle, Square 32nd, 16th, 8th, Triplet, ¼, ½, or None
PHASER	PHASER I/O PSR PAN PSR DEPTH RATE P>RESONANCE PSR STAGES TIME PHASER LVL	Out, In Left<0 to 100>Right 0 to 100 0 to 254 0 to 100 4, 6 32nd, 16th, 8th, Triplet, ¼, ½, or None -∞ to 0dB
FLANGER	FLANGER I/O FLN OUT 1 FLN PAN1 FLN DPTH 1 FLN RATE 1 TIME1 FLN OUT 2 FLN PAN2 FLN DPTH 2 FLN RATE 2 TIME2 FLN REGEN	Out, In -∞ to 0dB Left<0 to 100>Right 0 to 100 0 to 254 32nd, 16th, 8th, Triplet, ¼, ½, or None -∞ to 0dB Left<0 to 100>Right 0 to 100 0 to 254 32nd, 16th, 8th, Triplet, ¼, ½, or None -∞ to 0dB

Function (via FUNCTION SELECT control)	Parameter (via PARAMETER SELECT control)	Range (via PARAMETER ADJUST control)
CHORUS	CHORUS I/O CRS OUT 1 CRS PAN 1 CRS DPTH 1 CRS RATE 1 CRS>DLY1 TIME1 CRS OUT 2 CRS PAN 2 CRS DPTH 2 CRS RATE 2 CRS>DLY2 TIME 2	Out, In -∞ to 0dB Left<0 to 100>Right 0 to 100 0 to 254 0ms to 148ms 32nd, 16th, 8th, Triplet, ¼, ½, or None -∞ to 0dB Left<0 to 100>Right 0 to 100 0 to 254 0ms to 148ms 32nd, 16th, 8th, Triplet, ¼, ½, or None
PITCH SHIFT	PITCH SH I/O PSHIFT OUT PS PAN PITCH FINE PS-SPEED	Out, In -∞ to 0dB Left<0 to 100>Right -2400 to +1200 -20 to +20 cents Slow, Medium, Fast
AUTO PAN	AUTO PAN I/O LOCATION APAN RATE APAN WIDTH TIME	Out, In Direct, Effect, Both 0 to 254 0 to 254 32nd, 16th, 8th, Triplet, ¼, ½, or None
ROTARY SPEAKER	ROTR SPK I/O ROT SPEED R>SPKR SLOW R>SPKR FAST ROT SPK ACCEL ROT BAL	Out, In Slow, Fast 0 to 100 0 to 100 0 to 100 Rotor<0 to 100>Horn
SPEAKER SIMULATOR	SPKR SIM I/O SPKR TYPE MIC POSITION REACTANCE	Off, On 15, 12, 10, 8, Full Range -15dB to +15dB -15dB to +15dB

7. Operating the MultiValve™

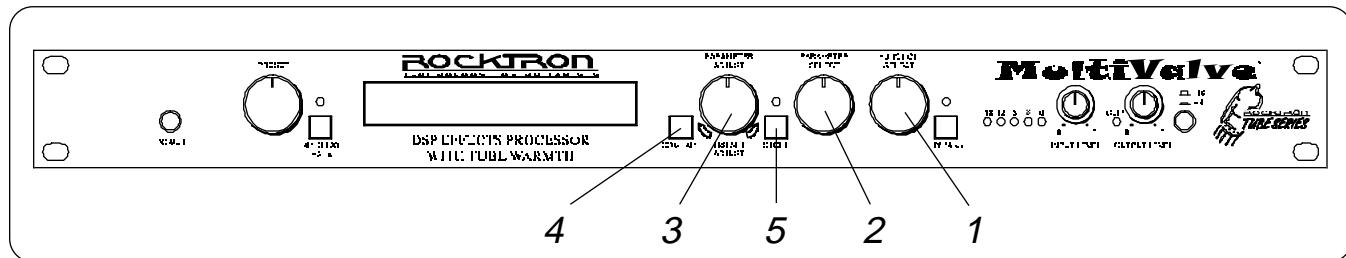
Selecting a preset



Step 1 Turn the PRESET control to the desired preset you wish to recall. The selected preset will be recalled automatically.

29 PRESET TITLE

Changing preset parameters



Step 1 Turn the FUNCTION SELECT control to select the function heading which contains the parameter(s) you wish to change.

***** REVERB *****

Step 2 Turn the PARAMETER SELECT control to the specific parameter you wish to change.

REV DECAY 59

Step 3 Turn the PARAMETER ADJUST control to alter the parameter value. The LED above the STORE button will light, indicating that the preset has had a parameter altered from its stored value.

REV DECAY 32

Step 4 The COMPARE button may now be pressed to compare the sound of the stored parameter value to the sound of the altered parameter value.

REV DECAY 59

Storing changed preset parameters

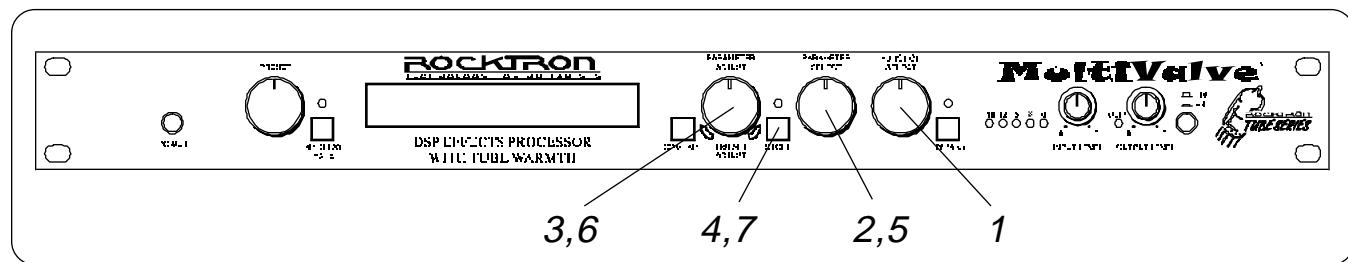
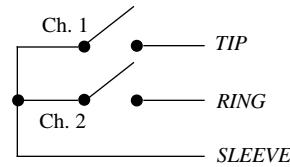
Step 5 While viewing a function or parameter title, press the STORE button to store the altered parameter(s). "STORED" will flash briefly on the display.

STORED

Switching Channels on Amplifiers and Preamps via the MultiValve *

The MultiValve™ allows you to switch channels on an amplifier or preamp by connecting a RTS cord from the "CHANNEL SWITCH" jack on the rear of the MultiValve™ to the "FOOTSWITCH" jack on the remote device(s). A single stereo-to-dual mono cord can also be used to connect from the MultiValve™ to two separate units. This allows for channel switching to be programmable (i.e. switched automatically when a MultiValve™ preset is recalled) instead of having to use a latching footswitch each time a channel needs to be switched. This function can also be performed through programming a continuous controller to the CHAN SW parameter(s). See page 41, "Controller Assignments" for more information on assigning continuous controllers.

The Tip of the "CHANNEL SWITCH" jack sends the change for Channel Switch 1, while the Ring of the "CHANNEL SWITCH" jack sends the change for Channel Switch 2. When Channel 1 is on, the Tip is connected to the Sleeve. When Channel 2 is on, the Ring is connected to the Sleeve. When Channels 1 and 2 are both off, the Tip and Ring are an open circuit with respect to the Sleeve (see diagram).



Step 1 Turn the FUNCTION SELECT control to "CHANNEL SWITCHES".

CHANNEL SWITCHES

Step 2 Turn the PARAMETER SELECT control one step clockwise to "CHAN SW 1".

CHAN SW 1 **OFF**

Step 3 Use the PARAMETER ADJUST control to select the on/off condition of Channel Switch 1. When switched "ON", the channel connected to the Tip of the MultiValve™ CHANNEL SWITCH jack will be switched when the current preset is recalled.

CHAN SW 1 **ON**

* This feature was designed to operate with as many different amplifiers as possible. However, due to the large number of amplifiers available on the market, it cannot be guaranteed to be compatible with all amplifiers.

Step 4 Press the STORE button to save the condition of Channel Switch 1 (if changed). "STORED" will flash briefly on the display.

STORED

Step 5 Turn the PARAMETER SELECT control one step further clockwise to "CHAN SW 2".

CHAN SW 2 OFF

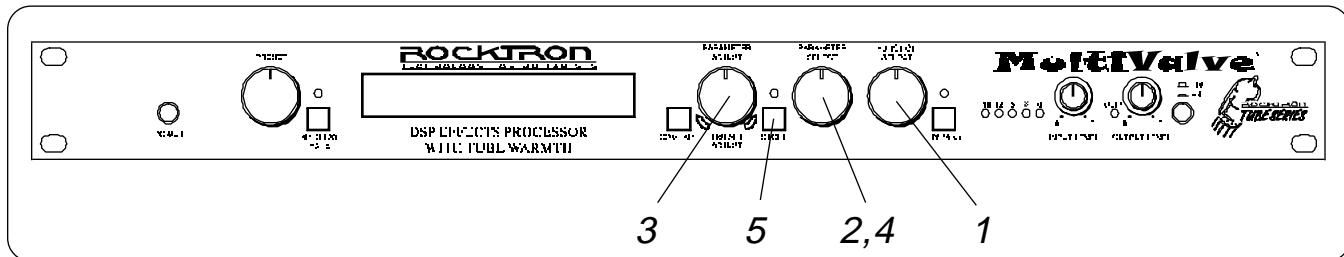
Step 6 Use the PARAMETER ADJUST control to select the on/off condition of Channel Switch 2. When switched "ON", the channel which is connected to the Ring of the MultiValve™ CHANNEL SWITCH jack will be switched when the current preset is recalled.

CHAN SW 1 ON

Step 7 Press the STORE button to save the condition of Channel Switch 2 (if changed). "STORED" will flash briefly on the display.

STORED

Editing a preset title



Step 1 To begin the Title Edit function, turn the FUNCTION SELECT control clockwise until the MultiValve™ displays "TITLE EDIT".

** TITLE EDIT **

Step 2 Turn the PARAMETER SELECT control clockwise to initiate the Title Edit mode. Turning this control will also select the character location to be edited. A flashing decimal will follow the character currently selected.

57 P.RESET TITLE

(Flashing Decimal)

Step 3 Use the PARAMETER ADJUST control to select the desired character for the current position (flashing decimal).

57 M.RESET TITLE

Step 4 To edit the character in the next position, turn the PARAMETER SELECT control one step clockwise. The flashing decimal will move to the next character.

57 MR.ESET TITLE

(Flashing decimal)

Step 5 After all the characters have been edited as needed, press the STORE button to save the new title memory. The MultiValve™ will flash "STORED" briefly.

STORED

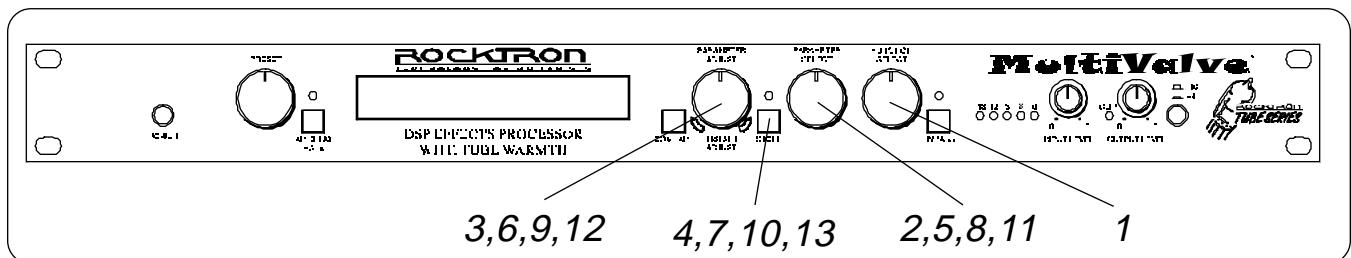
Note: *The STORE button must be pressed to save the new title. Exiting the Title Edit function before pressing the STORE button will erase any editing that was done in Title Edit.*

Also, after flashing "STORED", the MultiValve™ will remain in the Title Edit mode. You may either (a) turn the PRESET control to display and edit other preset titles without having to exit and re-enter Title Edit, or (b) turn the FUNCTION SELECT control to exit the Title Edit mode.

Controller Assignments

The Controller Assignment function allows for specific MultiValve™ adjustable parameters to be mapped (or assigned)* to a MIDI controller for real-time control by an expression pedal.

The Controller Assignment option also lets you store an upper and lower parameter value limit which the controller cannot exceed. For example, when using an expression pedal with a Rocktron All Access™ or MIDI Mate™ footswitch to send continuous control changes to control the "PITCH" parameter, an upper limit of +300 can be set and a lower limit of -200 can be set - even though the actual parameter range is from +1200 to -2400. When the expression pedal is at its heel position in this example, the "PITCH" parameter will be at -200, while at its toe position it will be at +300. Up to ten controllers can be assigned for each individual preset.



Step 1 To access the Controller Assign function, turn the FUNCTION SELECT control clockwise to "CONTROLLER ASSIG".

CONTROLLER ASSIG

Step 2 Turn the PARAMETER SELECT control for the first parameter of the Controller Assign function. This parameter allows you to select a controller number for the "CTR A" (Controller A) parameter to respond to.

CTR A **XXX**

This parameter (CTR A only) also gives you the option of selecting "ADJ". When "ADJ" is selected, the parameter assigned to the first controller (PA-A) can be instantly accessed by turning the PARAMETER ADJUST control when the preset title is displayed. This allows you to access a parameter that you adjust frequently without paging through function headings and parameters.

Step 3 Use the PARAMETER ADJUST control to select the controller number to be assigned to the PA-A parameter. Any number from 0 to 120 may be selected, as well as OFF (*will not respond to MIDI control changes*). Match the number selected for this parameter with the controller number on the MIDI transmitter.



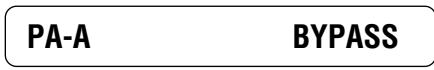
CTR A 7

Step 4 After selecting the desired controller number, press the STORE button to save the number for the "CTR A" parameter. "STORED" will flash briefly on the display.



STORED

Step 5 Turn the PARAMETER SELECT control one step clockwise to display the parameter that is currently mapped to the "CTR A" control number.



PA-A BYPASS

Step 6 Turn the PARAMETER ADJUST control to scroll through the available parameters for the current configuration.



PA-A REVERB LVL

Step 7 After selecting the parameter that you which to assign to a controller, press the STORE button to save it. The MultiValve™ will flash "STORED" briefly.



STORED

Note: The MultiValve™ allows you to select an upper and lower value limit which the parameter cannot exceed. For example, if a parameter has a value range from $-\infty$ to 0dB, yet you would like the range of the parameter to vary from only -12dB to -2dB, you may set a lower limit of -12 and an upper limit of -2 via the Upper and Lower Limit parameters. When a parameter is stored in the Controller Assign function (Step 7), the maximum parameter value is automatically stored as the upper limit, while the minimum value is stored as the lower limit.

Step 8 Turn the PARAMETER SELECT control one step clockwise to display the Upper Limit parameter (for PA-A).

ULIM A XXX

Step 9 Use the PARAMETER ADJUST control to choose the highest value that the parameter is not to exceed through MIDI control changes.

ULIM A -2

Step 10 After selecting a value for the upper limit, press the STORE button to save it. "STORED" will flash briefly on the display.

STORED

Step 11 Turn the PARAMETER SELECT control one step clockwise to access the Lower Limit parameter (for PA-A).

LLIM A $-\infty$

Step 12 Use the PARAMETER ADJUST control to select the lowest value which the parameter is not to fall below through MIDI control changes.

LLIM A -12

Step 13 After selecting a value for the lower limit, press the STORE button to save it. "STORED" will flash briefly on the display.

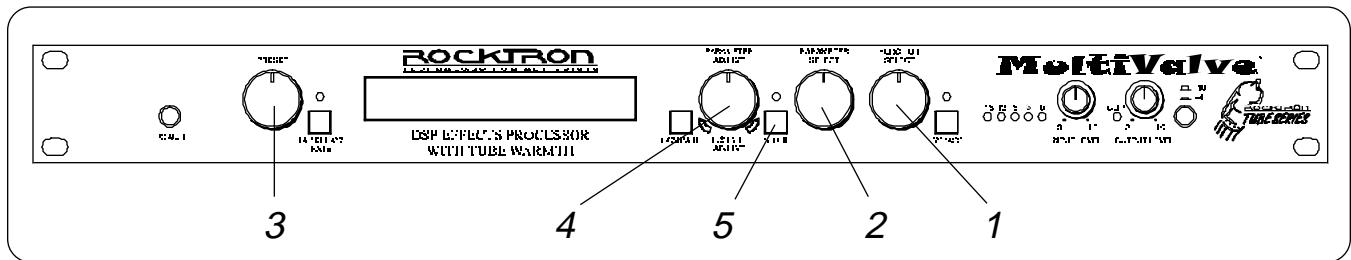
STORED

Selecting a lower limit value that is greater than the upper limit value will invert the response of the controller - i.e. the toe position of the expression controller will provide the minimum value, while the heel position will provide the maximum value.

Note: Steps 1-13 can be repeated nine times for a total of 10 controllers. To exit Controller Assign at any time, turn either the PRESET or FUNCTION SELECT control. Only those changes that have been stored will be saved after exiting the Controller Assign function.

Copying MultiValve Presets, Titles and Controller Assignments

The Copy function allows you to copy any preset, preset title or controller assignment into any other preset location instantly.



Copying presets:

Step 1 Turn the FUNCTION SELECT control to "COPY".

***** COPY *****

Step 2 Turn the PARAMETER SELECT control one step clockwise to access the "PR> XX to >PR XX" parameter, as shown below. The number on the left represents the preset to be copied, while the number on the right represents the preset location to copy to.

PR> 4 TO >PR 4

Preset to copy *Preset location to copy to*

Step 3 Use the PRESET control to select the desired preset to be copied.

PR> 21 TO >PR 4

Step 4 Use the PARAMETER ADJUST control to select the location to copy the selected preset into.

PR> 21 TO >PR 59

Step 5 Press the STORE button to copy the selected preset into the selected preset location. "STORED" will flash briefly on the display.

STORED

Step 6

After flashing "STORED", the MultiValve™ will display "COPY TITLE TOO?". This allows you to copy the title from the copied preset into the new location as well. To copy the title, press the STORE button a second time. "STORED" will flash briefly before the MultiValve™ displays the new preset number and title.

STORED

Turning the PARAMETER ADJUST control instead of pressing the STORE button allows you copy the title from the preset being copied to any other location. Once a location has been selected, press the STORE button to copy the title.

If you do not wish to copy the preset title, turn the PARAMETER SELECT or FUNCTION SELECT control to exit the preset copy function. The preset has been copied to the new location, but its title will be the title which was already at the new location.

*Copying preset titles:***Step 1**

Turn the FUNCTION SELECT control to "COPY".

***** **COPY** *****

Step 2

Turn the PARAMETER SELECT control two steps clockwise to access the "TI> XX to >TI XX" parameter, as shown below. The number on the left represents the preset title to be copied, while the number on the right represents the preset location to copy the title to.

TI> 4 TO >TI 4

Preset title to copy *Preset location to copy to*

Step 3

Use the PRESET control to select the desired preset title to be copied.

TI> 21 TO >TI 4

Step 4

Use the PARAMETER ADJUST control to select the location to copy the selected preset into.

TI> 21 TO >TI 59

Step 5 Press the STORE button to copy the selected title into the selected preset location. "STORED" will flash briefly before displaying the preset title at its new location.

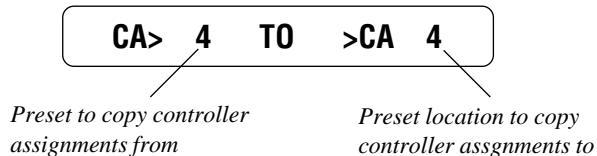
STORED

Copying controller assignments:

Step 1 Turn the FUNCTION SELECT control to "COPY".

***** COPY *****

Step 2 Turn the PARAMETER SELECT control three steps clockwise to access the "CA> XX to >CA XX" parameter, as shown below. The number on the left represents the preset from which the controller assignments will be copied, while the number on the right represents the preset location to copy those controller assignments to.



Step 3 Use the PRESET control to select the desired preset to copy controller assignments from.

CA> 21 TO >CA 4

Step 4 Use the PARAMETER ADJUST control to select the location to copy the controller assignments into.

CA> 21 TO >CA 59

Step 5 Press the STORE button to copy the selected preset into the selected preset location. "STORED" will flash briefly before the MultiValve™ displays the preset number and title that the controller assignments were stored into.

STORED

Tap Delay

The MultiValve™ allows you to change the delay times and/or modulation rates for any given preset while you are playing two different ways:

1. By tapping the TAP DELAY/RATE button on the front panel of the MultiValve™, or
2. By tapping a momentary footswitch connected to the rear panel TAP DELAY/RATE FOOTSWITCH jack.
3. By using a Rocktron All Access™ in Remote mode with the MultiValve™ and tapping switch #15.

When any "TIME" parameter within a given preset is set to $\frac{1}{2}$, $\frac{1}{4}$, TRIPLET, 8TH, 16TH or 32ND NOTE, tapping the footswitch or the front panel TAP DELAY/RATE button two times will change the current delay time and/or modulation rate based on the amount of time that passes between taps. The MultiValve™ will detect the amount of time between any two taps that are less than one second apart (*i.e., if more than one second passes after the first tap, two additional taps - less than one second apart - will be required to change the delay time again*).

After the MultiValve™ detects the length of time between each tap, it then multiplies or divides that time based on the type of note stored for the TIME parameter(s) of the preset. The resulting delay time can be:

- one-eighth of the time between taps (32ND)
- one-fourth of the time between taps (16TH)
- one-half of the time between taps (8TH)
- two-thirds of the time between taps (TRIPLET)
- equal to the time between taps ($\frac{1}{4}$), or
- two times the amount of time between taps ($\frac{1}{2}$)

The maximum delay time the MultiValve™ provides is 1000ms, therefore the Tap Delay feature will automatically default to a lower "TIME" parameter value when the time between taps requires a delay time over 1000ms. For example, if the HALF setting is stored for the TIME 1 parameter and the time between taps is 600ms, a delay time of 1200ms would be required (*i.e. 600ms x 2*). Because the maximum delay time is 1000ms, the MultiValve™ will default to the next lower multiplier ($\frac{1}{4}$) and provide a delay time equal to the delay time detected (600ms).

"NONE" can also be selected for the TIME parameter(s) so that they will not respond to taps from the footswitch or front panel TAP DELAY/RATE button.

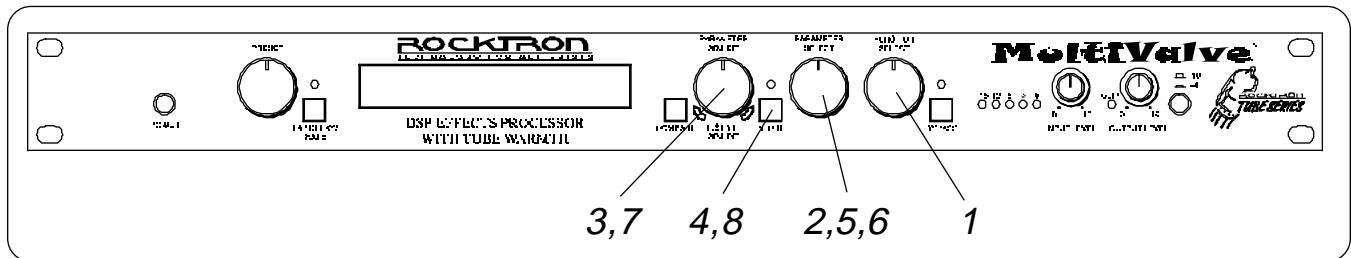
Note 1: *If delay times for each preset are selected via the Tap Delay feature (instead of manually setting the parameters), the flashing front panel tap delay rate L.E.D. will accurately reflect the tapped value that was stored in each preset when it is recalled. However, the MultiValve™ must be displaying either a function heading or a parameter to store the flashing tap delay rate (*i.e., not while displaying a preset title*). If a preset title is displayed when the STORE button is pressed, only the Power On preset is stored (see page 63).*

Note 2: *If a footswitch is connected to the rear panel Tap Delay/Rate FOOTSWITCH jack when the unit is powered up, the MultiValve™ will automatically determine the type of footswitch connected (*i.e. normally open, normally closed, etc.*). However, the footswitch must already be connected when the unit is turned on.*

Program Changes

Program Changes allow for different MIDI program numbers to be assigned to MultiValve preset numbers. For example, MIDI program #58 can be mapped to MultiValve preset #34. Then, when program #58 is selected from a MIDI transmitting device (such as a Rocktron All Access foot controller), preset #34 will be recalled on the MultiValve.

The Program Changes Map table is shipped from Rocktron at a one-to-one correspondance (i.e. MIDI program #1 is mapped to MultiValve preset #1, 2 to 2, 3 to 3, etc.).



Step 1 To access MIDI Program Mapping, turn the FUNCTION SELECT control clockwise until the MultiValve displays "PROGRAM CHANGES".

PROGRAM CHANGES

Step 2 Turn the PARAMETER SELECT control one step clockwise to display the current Program Change On/Map/Off status.

PROG CHANGES **ON**

Program Changes status options

- ON** - Execute MIDI program changes as received by a MIDI controller
- MAP** - Use mapping table when a program change is received
- OFF** - Do not execute MIDI program changes

Step 3 Turn the PARAMETER ADJUST control to select the desired Program Changes status setting.

PROG CHANGES **MAP**

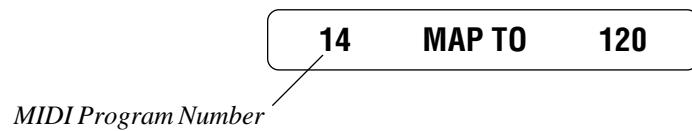
Step 4 Press the STORE button to save the status selection. "STORED" will flash briefly on the display.

STORED

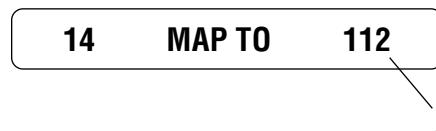
Step 5 If "MAP" has been selected, turn the PARAMETER SELECT control one step clockwise to display the current Program Changes mapping assignments.



Step 6 The number on the left of the display is the MIDI program number (or the number sent via a MIDI footswitch or other MIDI transmitter). Turn the PARAMETER SELECT control to select the MIDI program number to map to a preset.



Step 7 The number on the right of the display is the preset number to map to (or the preset number that will be recalled when the MIDI program number on the left is received). Turn the PARAMETER ADJUST control to select the preset number to map to.



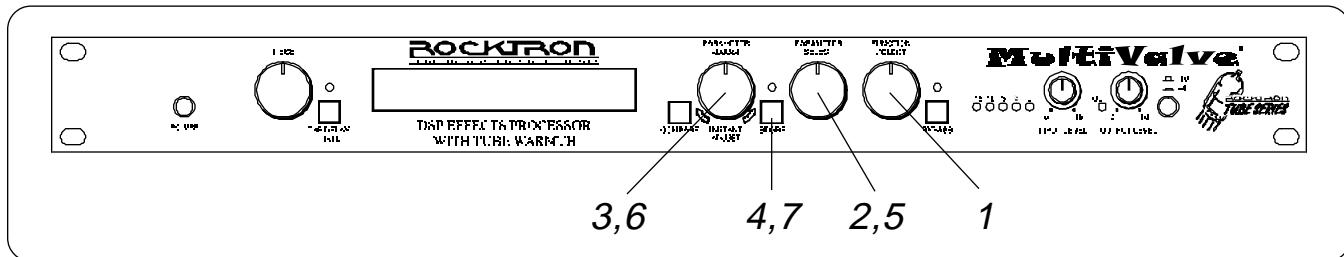
* The preset number to map to can also be set to "OFF"—thereby not responding to that program change command.

Step 8 After selecting both the MIDI program number and the preset number, press the STORE button to save the change for each altered mapping. "STORED" will flash briefly on the display.



MIDI Channels

The MultiValve can receive MIDI commands from other MIDI transmitting devices, as well as transmit MIDI program changes to other MIDI-based equipment when a preset is recalled on the MultiValve. The MIDI Channels function allows you to select the MIDI channels that the MultiValve will receive and transmit MIDI information on.



Step 1 Turn the FUNCTION SELECT control clockwise until the MultiValve displays "MIDI CHANNELS".

MIDI CHANNELS

Step 2 Turn the PARAMETER SELECT control one step clockwise to display the current MIDI Receive channel.

RECEV CHANL 1

Step 3 Turn the PARAMETER ADJUST control to select the desired MIDI channel. You may select channels 1-16, OMNI (all channels) or OFF (will not receive MIDI commands).

RECEV CHANL OMNI

Step 4 Press the STORE button to save the new MIDI Receive channel. "STORED" will flash briefly on the display.

STORED

Step 5 Turn the PARAMETER SELECT control one step further to access the MIDI Transmit Channel status.

TRANS CHANL OFF

Step 6 Turn the PARAMETER ADJUST control to select the channel that the MultiValve will transmit a MIDI program change on. You may select channels 1-16 or OFF (will not transmit a MIDI program change).

TRANS CHANL 1

Step 6 Press the STORE button to save the new MIDI Transmit channel. "STORED" will flash briefly on the display.

STORED

After the desired MIDI channels have been selected, turn the FUNCTION SELECT control to exit the MIDI Channels function.

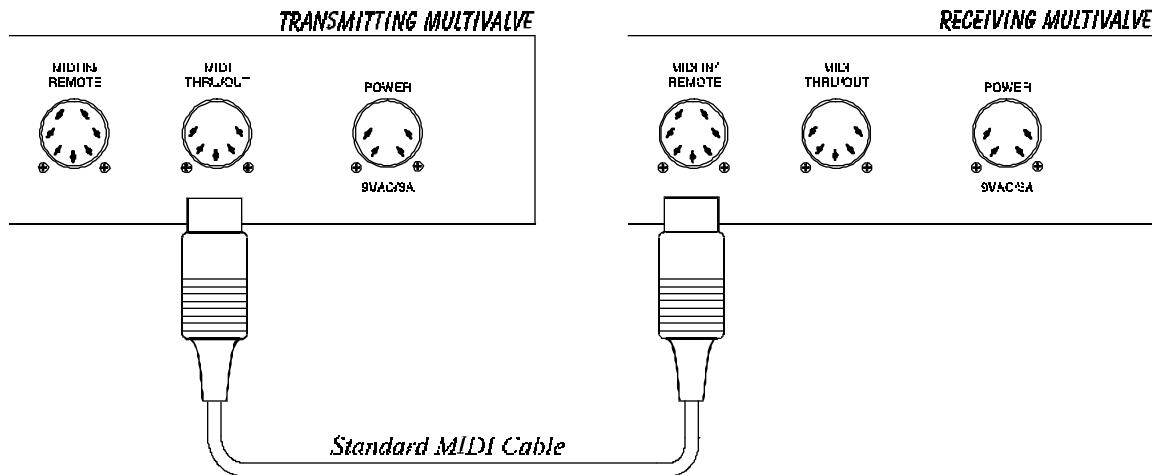
MIDI Dump/Load

Any or all of the MultiValve presets may be dumped to a sequencer or another MultiValve via system exclusive messages. The information exchanged when performing a MIDI Dump consists of parameter values, title characters and controller assignment information. When dumping a single preset into another MultiValve, the dumped preset may be loaded into any preset location on the receiving MultiValve.

To dump a single MultiValve preset into another MultiValve

Step 1 Connect a standard MIDI cable from the MIDI OUT of the transmitting MultiValve to the MIDI IN on the receiving MultiValve.

IMPORTANT: *Do not allow a looping connection from the MIDI OUT/THRU of the receiving MultiValve back to the MIDI IN of the transmitting MultiValve.*



Step 2 Turn the FUNCTION SELECT controls on both the transmitting and receiving MultiValves until "MIDI DUMP/LOAD" is displayed on each.

MIDI DUMP/LOAD

TRANSMITTING MULTIVALVE

MIDI DUMP/LOAD

RECEIVING MULTIVALVE

Step 3 Turn the PARAMETER SELECT control on each unit one step clockwise to "PR DUMP/LOAD".

1 PR DUMP/LOAD

TRANSMITTING MULTIVALVE

1 PR DUMP/LOAD

RECEIVING MULTIVALVE

Step 4

Turn the PRESET control on the transmitting MultiValve to the preset that is to be dumped into the receiving MultiValve. As the PRESET control is turned, the preset number will be displayed in the first three characters of the display.

32 PR DUMP/LOAD

TRANSMITTING MULTIVALVE

Step 5

Use the PRESET control on the receiving MultiValve to select the preset location to store the received preset. (The preset currently stored at the selected location will be lost when the new preset is received, therefore caution should be used when selecting a preset location.)

122 PR DUMP/LOAD

RECEIVING MULTIVALVE

Step 6

To initiate the dump, press the STORE button on the transmitting MultiValve. The transmitting MultiValve will display the preset number being dumped and "DUMPED". The receiving MultiValve will display the preset location being stored to and "RECEIVING..." while it receives and stores the preset parameters and title.

32 DUMPED

TRANSMITTING MULTIVALVE

122 RECEIVING...

RECEIVING MULTIVALVE

After all the information for the dumped preset is stored, the receiving MultiValve will display "LOADED". The receiving MultiValve also recalls the loaded preset at this time so that it may be verified.

122 LOADED

RECEIVING MULTIVALVE

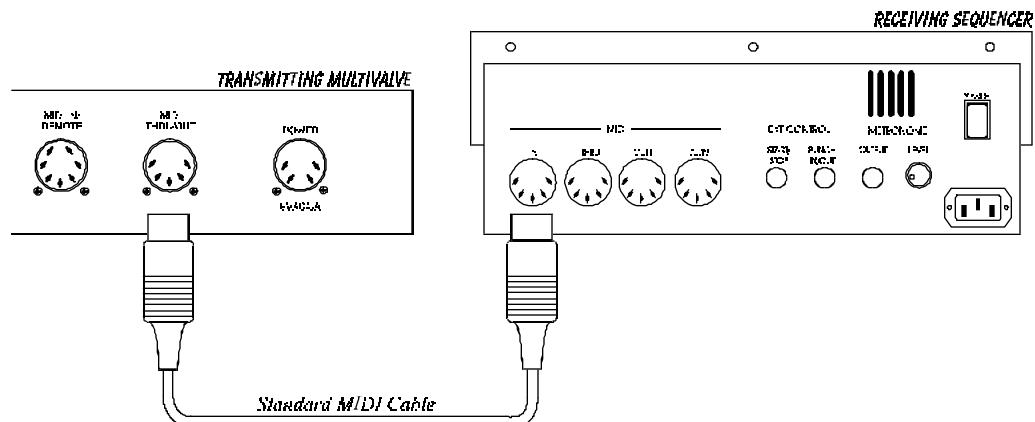
Note: *If there is an error in transmission, the unit will display "RECEIVE ERROR". Should this occur, check connections and try again. If other errors occur, check the Error Messages chart in the Appendix.*

To dump a single MultiValve preset into a sequencer

Note: When performing data dumps to and from the MultiValve, always perform the dump in real time sequence mode. This will ensure that data loaded back into the MultiValve is not sent faster than the MultiValve can receive it.

Also, make sure that the sequencer's MIDI filter is set to accept SYSX information.

Step 1 Connect a standard MIDI cable from the MIDI OUT of the transmitting MultiValve to the MIDI IN on the receiving sequencer.



Step 2 Turn the FUNCTION SELECT controls on the transmitting MultiValve until "MIDI DUMP/LOAD" is displayed.

MIDI DUMP/LOAD

TRANSMITTING MULTIVALVE

Step 3 Turn the PARAMETER SELECT control on the transmitting MultiValve until "BULK DUMP/LOAD" is displayed.

BULK DUMP/LOAD

TRANSMITTING MULTIVALVE

Step 4 Start the sequencer recording.

RECORD

Step 5

Press the STORE button on the MultiValve to initiate the data dump. As the MultiValve performs the dump, it will display "XXX DUMPED" - where "XXX" = the number of the data string currently transmitting (i.e. strings 1-254 are presets, titles, controller information and 2-tap delay information; string 255 contains program mapping information; and string 256 contains miscellaneous information. Contact Rocktron Corporation for information on how to receive a detailed MIDI spec).

XXX DUMPED

TRANSMITTING MULTIVALVE

Step 6

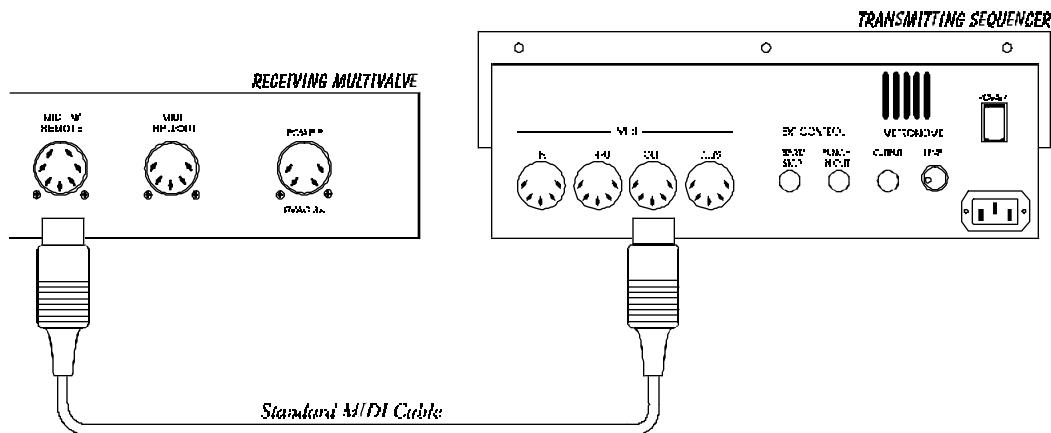
After the MultiValve displays "TRANS COMPLETE", stop the sequencer. The sequencer should have recorded all of the data that was dumped from the MultiValve. Keep this data stored on a disk in a safe place. Turn the PARAMETER SELECT control to continue.

STOP

To reload user data from a sequencer

Step 1 Connect a standard MIDI cable from the MIDI OUT of the transmitting sequencer to the MIDI IN on the receiving MultiValve.

IMPORTANT: *Do not allow a looping connection from the MIDI OUT/THRU of the receiving MultiValve back to the MIDI IN of the transmitting sequencer.*



Step 2 Turn the FUNCTION SELECT controls on both the receiving MultiValve until "MIDI DUMP/LOAD" is displayed.

MIDI DUMP/LOAD
RECEIVING MULTIVALVE

Step 3 Turn the PARAMETER SELECT controls on the receiving MultiValve until "BULK DUMP/LOAD" is displayed.

MIDI DUMP/LOAD
RECEIVING MULTIVALVE

Step 4

Play back the data stored on the sequencer. The MultiValve will display the data strings as it is storing them. Each data string will appear with the word "LOADED". After all the user data has been loaded, the MultiValve will display "LOAD COMPLETE". Do not play back the data from the sequencer faster than it was loaded, as errors may occur (errors may also occur if any knob is turned or any button is pressed before the message "LOAD COMPLETE" appears).

LOAD COMPLETE

RECEIVING MULTIVALVE

If errors occur during transmission, the unit will display "RECEIVE ERROR" for transmission errors and "XMEM ERROR" for internal hardware errors. Errors occurring in transmission does not indicate that all of the received data is corrupted. Only the transmission string where the error occurred is corrupted.

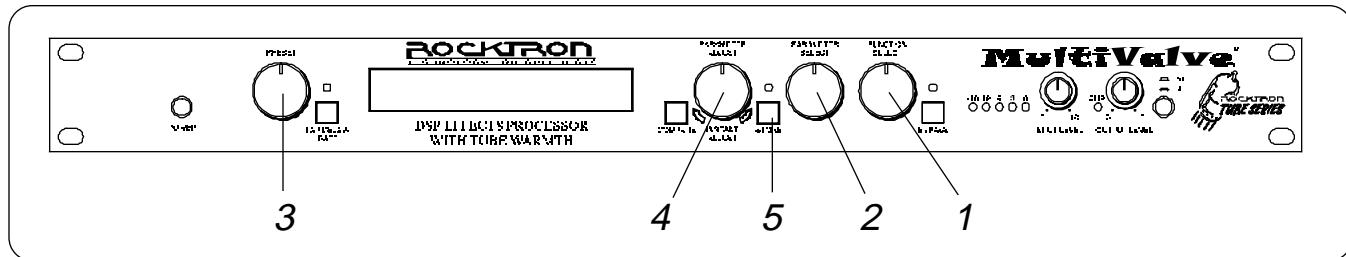
- When receiving a Bulk Load, it is important that the data loaded to the MultiValve is not transmitted faster than it was originally dumped from the MultiValve. If information is sent too fast to the MultiValve, an error will occur.

When dumping information from a data storage device, such as an Alesis Data Disk, it is necessary to perform the dump in **sequencemode** rather than **sysxmode**. Sequence mode will dump the information back to the MultiValve at the same rate as it was received from the MultiValve. The MultiValve can receive a data dump at about 65Hz (or about 1 byte every 15 milliseconds).

Factory Restore

The Factory Restore function allows you to restore altered MultiValve presets to their original condition as shipped from the factory. Either the entire MultiValve memory can be restored, a single preset can be restored to any preset location, or the controller information alone can be restored.

Restoring a single factory preset:



Step 1 Turn the FUNCTION SELECT control clockwise to "FACTORY RESTORE".

FACTORY RESTORE

Step 2 Turn the PARAMETER SELECT control one step clockwise to "RESTR 1 TO 1". The number on the left is the original factory preset number to be restored. The number on the right is the preset location that the preset will be stored into.

RESTR 1 TO 1

Factory preset to be restored *Preset location to store into*

Step 3 Turn the PRESET control to select the factory preset to be restored.

RESTR 98 TO 1

Step 4 Turn the PARAMETER ADJUST control to select the preset location to store the restored preset into.

RESTR 98 TO 22

!! CAUTION !!

Pressing the STORE button at this time will overwrite the current preset with the displayed factory preset.

Step 5

Press the STORE button to begin restoring the selected preset into the selected location. After the process is completed, the display should read "ERRORS 0". This represents the number of bytes that the MultiValve found did not initialize properly. Any number of errors other than "0" means that the MultiValve may not have initialized properly and the process should be repeated.



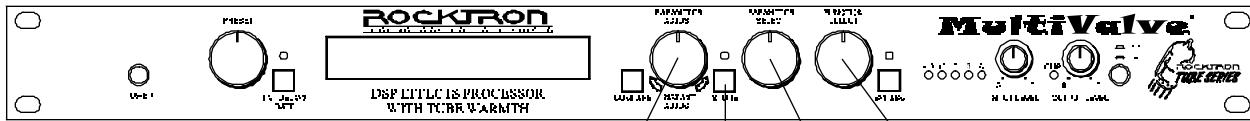
ERRORS 0

The MultiValve will remain in this condition until the FUNCTION SELECT control is turned to exit the Factory Restore function. The preset currently recalled will be the preset most recently restored into the current location.

Restoring the MultiValve memory (all presets):

!! CAUTION !!

This procedure will permanently erase all user presets (1-128) and replace them with the original factory presets. If you have altered and stored presets which you do not want to erase, do not perform the following procedure.



1 2 3 4

Step 1 Turn the FUNCTION SELECT control clockwise to "FACTORY RESTORE".

FACTORY RESTORE

Step 2 Turn the PARAMETER SELECT control two steps clockwise to "ALL RESTORE 0".

ALL RESTORE 0

Step 3 A specific code number must be entered to restore the MultiValve memory. Use the PARAMETER ADJUST control to enter the number "243".

ALL RESTORE 243

!! WARNING !!

Pressing the STORE button at this time will permanently erase all user presets and replace them with the original factory presets. If you have altered and stored presets which you do not want to erase, turn the FUNCTION SELECT control to exit this function.

Step 4

Press the STORE button at this time to initiate the All Restore procedure and erase all current MultiValve presets, replacing them with the original factory presets. The MultiValve will display "INITIALIZING" as the MultiValve memory is restored.

A rectangular display showing the word "INITIALIZING" in a bold, sans-serif font, centered within the frame.

INITIALIZING

After the All Restore process is completed, the display should read "ERRORS 0". This is the number of bytes that the MultiValve found that did not initialize properly. Any number of errors other than "0" means that the MultiValve may not have initialized properly and the process should be repeated.

A rectangular display showing the word "ERRORS" on the left and the number "0" on the right, both in a bold, sans-serif font, separated by a thin vertical line.

ERRORS 0

The MultiValve will remain in this condition until the FUNCTION SELECT control is turned to exit the Factory Restore function. The preset currently recalled will be the preset most recently restored into the current location.

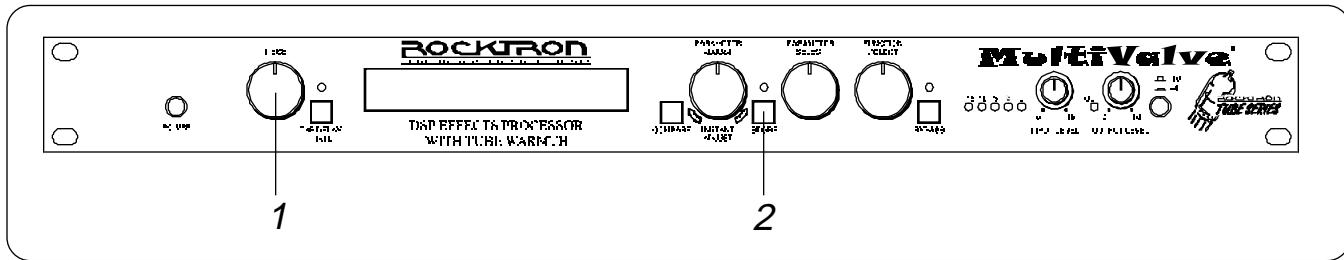
Restoring the MultiValve controller assignments:

The controller assignments for the MultiValve can also be reinitialized without affecting presets and other stored information. Reinitialization of the controller assignments is necessary when setting up the MultiValve to operate in remote mode with a Rocktron All Access footswitch.

To reinitialize only the controller assignments, enter a code number of "244" at Step 3 on the preceding page (instead of the "243" shown).

Selecting a Power On Preset

The MultiValve allows you to store a Power On preset which will always be recalled when the unit is turned on.



Step 1 Turn the PRESET control to the preset number you wish to be recalled each time the unit is turned on.

34 PRESET TITLE

Step 2 Press the STORE button while viewing the preset number and title to save it as the Power On preset.

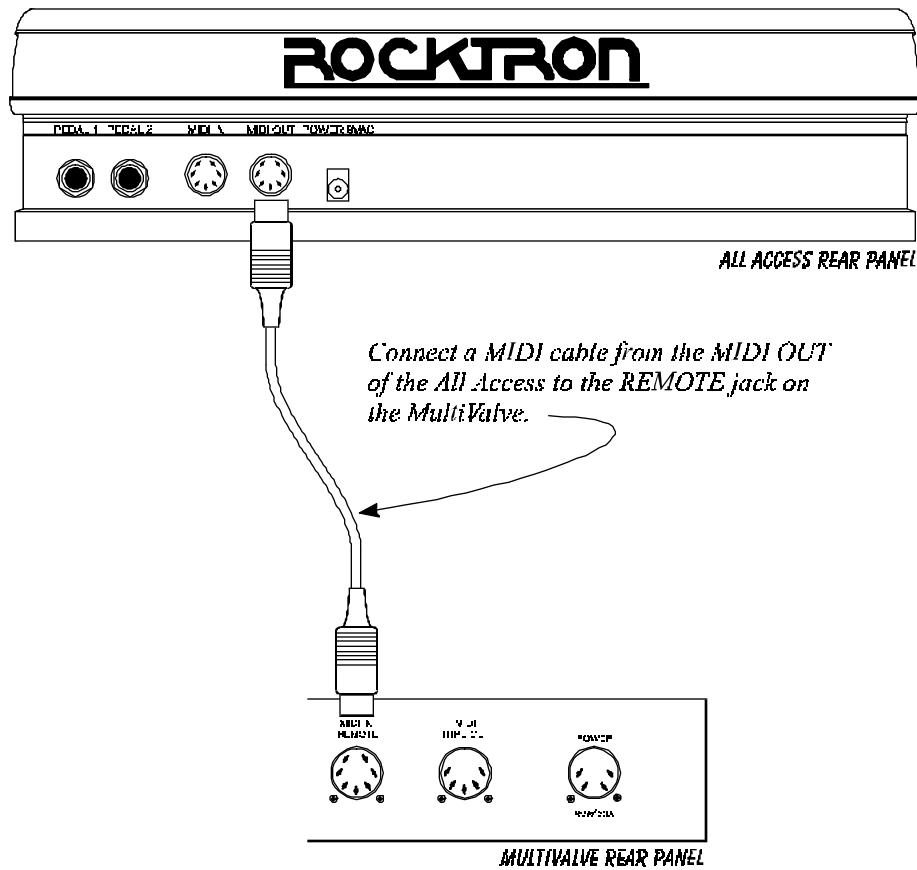
PWR ON PR STORED

Using the MultiValve with a Rocktron All Access™ in REMOTE mode

A Rocktron All Access™ MIDI footswitch can be configured as a dedicated remote control for the MultiValve—allowing direct access to specific MultiValve features and parameters from the footswitch at any time.

Step 1

To use an All Access footswitch as a dedicated remote, connect the MIDI OUT of the All Access to the REMOTE jack of the MultiValve using a 7-pin MIDI cable, as shown below.



To set up the MultiValve for remote operation, do the following:

Step 2

Reinitialize the controller assignments as shown on page 62 under the heading "Restoring the MultiValve Controller Assignments". This will match up the MultiValve's controller assignments to the All Access. A code of "243" must be entered to initialize only the controller information.

ALL RESTORE

243

Step 3 Turn the FUNCTION SELECT control clockwise to "REMOTE CONTROL".

REMOTE CONTROL

Step 4 Turn the PARAMETER SELECT control one step clockwise to display "REMOTE".

REMOTE OFF

Step 5 Turn the PARAMETER ADJUST control to select "ON".

REMOTE ON

Step 6 Press the STORE button to save the Remote on/off status. "STORED" will flash briefly.

REMOTE ON

Step 7 If the MultiValve titles are to be displayed on the All Access, turn the PARAMETER SELECT control to "TITLE XFER".

TITLE XFER OFF

Step 8 Turn the PARAMETER ADJUST control to "ON" to enable title transfers from the MultiValve to the All Access display.

TITLE XFER ON

Step 9 Press the STORE button to save the Title Transfer on/off status. "STORED" will flash briefly.

STORED

To set up the All Access for remote operation, perform these steps from the All Access SETUP program:

(See the All Access user's manual for detailed information on editing the All Access)

Step 8 Set the Operating Mode to "REMOTE".

Step 9 Set the Bank Size to "5".

Step 10 Reinitialize only the controller information for the instant access switches and pedals using the All Access Controller Restore code number "231".

Step 11 If the preset titles from the MultiValve are to be displayed on the All Access automatically, set the Remote Title Number to match the Unit ID Number parameter on the MultiValve.

When operating the All Access in Remote mode with a MultiValve, switches 1-5 act as normal preset switches, while other switches are automatically configured to perform special functions, as described below.

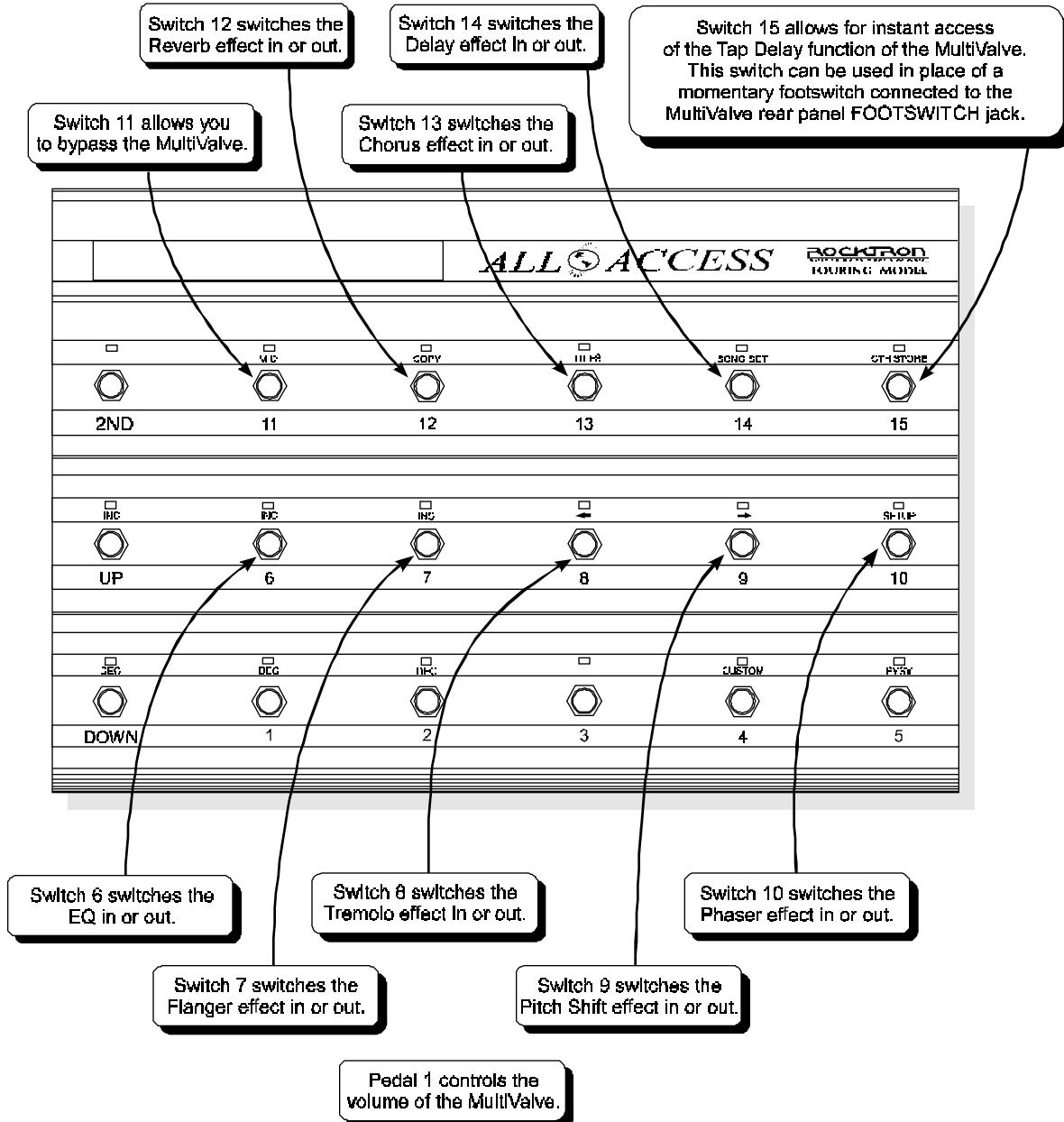
"Classic" Configuration

- Switch 6** Switches the EQ effect in or out.
- Switch 7** Switches the Flanger effect in or out.
- Switch 8** Switches the Tremolo effect in or out.
- Switch 9** Switches the Pitch Shift effect in or out.
- Switch 10** Switches the Phaser effects in or out.
- Switch 11** Allows you to bypass the MultiValve.
- Switch 12** Switches the Reverb effect in or out.
- Switch 13** Switches the Chorus effect in or out.
- Switch 14** Switches the Delay effect in or out.
- Switch 15** Instant Tap Delay access.
- Pedal 1** Controls the Volume parameter

"Rotary" Configuration

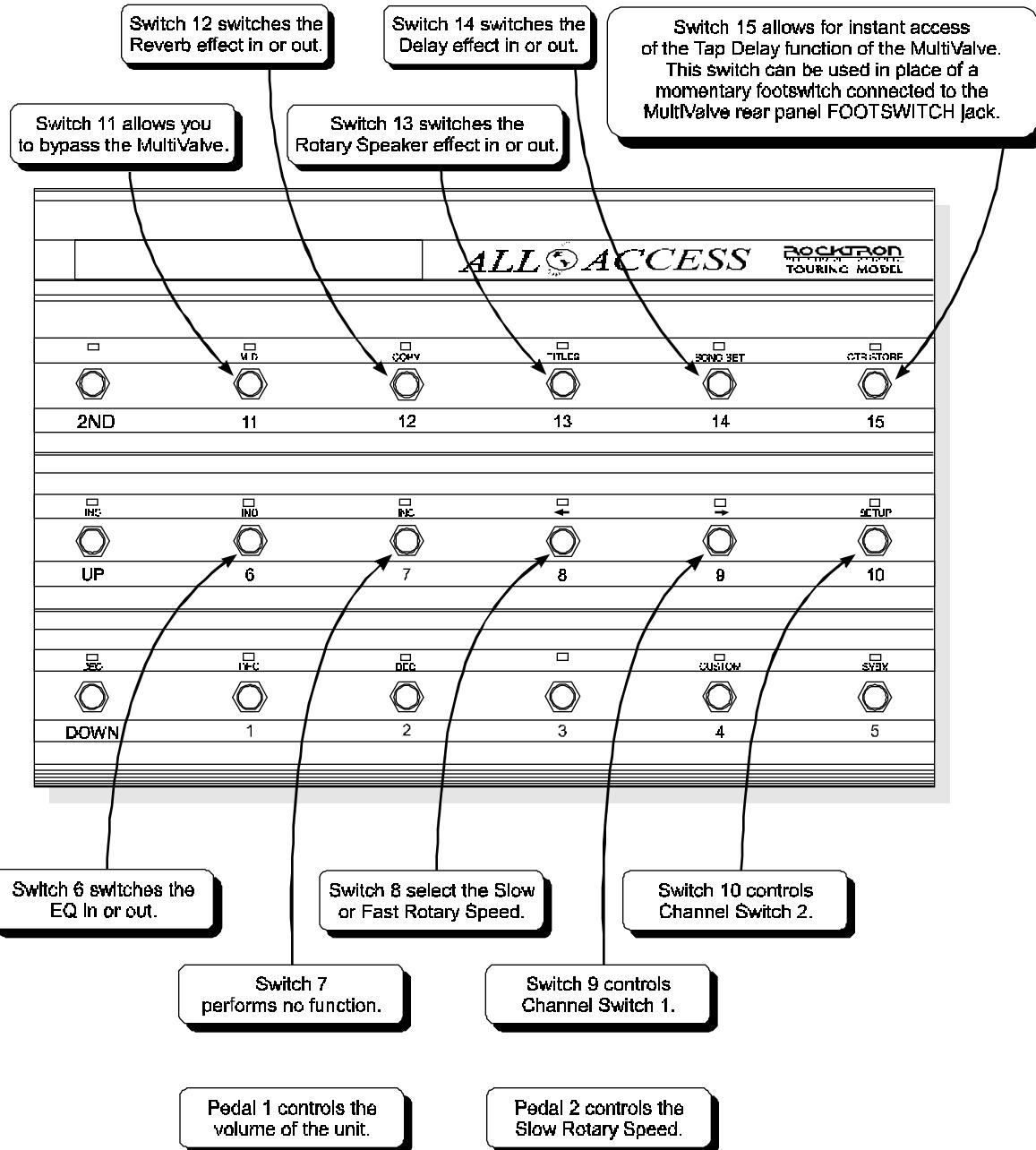
- Switch 6** Switches the EQ effect in or out.
- Switch 7** No function
- Switch 8** Selects Slow or Fast Rotary speed.
- Switch 9** Sends the change for Channel Switch 1.
- Switch 10** Sends the change for Channel Switch 2.
- Switch 11** Allows you to bypass the MultiValve.
- Switch 12** Switches the Reverb effect in or out.
- Switch 13** Switches the Rotary Speaker effect in or out.
- Switch 14** Switches the Delay effect in or out.
- Switch 15** Instant Tap Delay access.
- Pedal 1** Controls the Slow Rotary speed.
- Pedal 2** Controls the Volume parameter.

Remote mode functions in *Classic* configuration



Upon proper setup and connection of the MultiValve and All Access units, the All Access will provide the functions shown above when a "Classic" configuration preset is recalled.

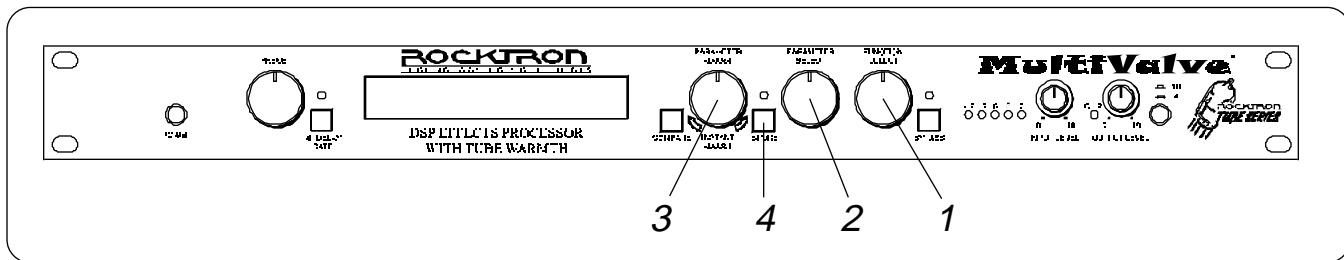
Remote mode functions in *Rotary* configuration



Upon proper setup and connection of the MultiValve and All Access units, the All Access will provide the functions shown above when a "Rotary" configuration preset is recalled.

Selecting a Configuration

The MultiValve allows you to select which configuration—*Classic* or *Rotary*—is active for the current preset.



Step 1 Turn the FUNCTION SELECT control fully clockwise to "CONFIG SELECT".

CONFIG SELECT

Step 2 Turn the PARAMETER SELECT control to access the "XXXXXXX SELECTED" parameter.

CLASSIC SELECTED

Step 3 Turn the PARAMETER ADJUST control to select the desired configuration.

ROTARY SELECTED

Step 4 Press the STORE button to save the selected configuration. "STORED" will flash briefly on the MultiValve display.

STORED

8. Appendix

ERROR MESSAGES

Message	Possible Reason	Corrective Action
<i>MEMORY ERROR</i>	CODE BYTE IS NOT CORRECT IN EEPROM MEMORY.	<i>MAKE SURE EEPROM IS TIGHT IN SOCKET.</i> <i>MAKE SURE WITHIN CORRECT OPERATING TEMPERATURE.</i>
<i>DUMP ERROR</i>	MIDI INFORMATION IS BEING RECEIVED AT THE MIDI IN AT THE SAME INFORMATION IS BEING DUMPED.	<i>DISCONNECT MIDI CORD AT MIDI IN OF TRANSMITTING MULTIVALE.</i>
<i>RECEIVE ERROR</i>	MIDI SYSTEM EXCLUSIVE INFORMATION WAS NOT RECEIVED CORRECTLY.	<i>BULK LOAD WAS TRANSMITTED TOO FAST.</i> <i>CHECK SUM BYTE WAS NOT CORRECT.</i> <i>DATA STRINGS NOT CORRECT LENGTH.</i> <i>DATA STRINGS OUT OF ORDER.</i>
<i>XMEM ERROR</i>	EEPROM MEMORY IS NOT BEING STORED TO CORRECTLY.	<i>MAKE SURE EEPROM IS TIGHT IN THE SOCKET.</i> <i>MAKE SURE WITHIN THE CORRECT OPERATING TEMPERATURE.</i>
<i>LOAD ERRORS</i>	MIDI SYSTEM EXCLUSIVE INFORMATION WAS NOT RECEIVED CORRECTLY OR STORED CORRECTLY.	<i>CHECK RECEIVE ERROR AND XMEM ERROR.</i>

MIDI IMPLEMENTATION**MultiValve**

Date: July 23, 1997

Version: 1.0

	<u>FUNCTION</u>	<u>TRANSMITTED</u>	<u>RECOGNIZED</u>	<u>REMARKS</u>
BASIC CHANNEL	DEFAULT CHANGED	1-16 1-16	1-16 1-16	May be saved in non-volatile memory
MODE	DEFAULT	X	X	
	MESSAGES	X	X	
	ALTERED	X	X	
NOTE NUMBER	TRUE VOICE	X	X	
VELOCITY	NOTE ON	X	X	
	NOTE OFF	X	X	
AFTER TOUCH	KEY'S CHANNEL	X X	X X	
PITCH BEND		X	X	
CONTROL CHANGE**		X	O	
PROGRAM CHANGE*	TRUE NUMBER	O	O	
SYSTEM EXCLUSIVE		O	O	For Bulk Dump/Load and Preset Dump/Load
SYSTEM COMMON	SONG POSITION	X	X	
	SONG SELECT	X	X	
	TRUE REQUEST	X	X	
SYSTEM REAL TIME	CLOCK COMMANDS	X X	X X	
AUXILIARY MESSAGES	LOCAL ON/OFF	X	X	
	ALL NOTES OFF	X	X	
	ACTIVE SENSING	X	X	
	SYSTEM RESET	X	X	

O=YES
X=NO

* Actual MIDI program value sent is 0-127, corresponding to presets 1-128. Optional implementation of program mapping also available.

** The control number may be from 0-120, or OFF. An upper and lower range may also be specified for most parameters.

TECHNICAL DATA**MEASUREMENT**

Maximum Input:	+20dBu
Maximum Output:	+20dBu
Nominal Input Range: (16dB Headroom)	+4dBu to -21dBu
Input Impedance:	470K ohms
Output Impedance:	120 ohms
Dynamic Range:	104dB (HUSH IN) 94dB (HUSH OUT)
THD+N	.009%
Dry Frequency Response	(10Hz to 100kHz) +.25, -2dB (10Hz to 30kHz) ±.25dB
Wet Frequency Response	(20Hz - 14.5kHz) +5, -3dB

CONDITIONS

<i>Input Level pot minimum</i>
<i>Output Level pot maximum</i>
<i>Input Level pot minimum</i>
<i>Input Level pot maximum</i>
<i>Peak Signal/A Weighted Noise Floor, Direct Level = +6dB, Direct Post HUSH, Effects Level = -∞</i>
<i>1kHz, -5dB input level</i>
<i>22Hz to 22kHz bandwidth</i>
<i>Direct Level = +6dB, Direct Post HUSH, Effects Level = -∞</i>

**Rocktron Corporation**

2870 Technology Drive
Rochester Hills, MI 48309
USA

Customer Service: (248) 853-3055
Fax Number: (248) 853-5937

World Wide Web: <http://www.rocktron.com>
Email: rocktron@eaglequest.com